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THE

VETERINARY BULLETIN

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DISEASES CAUSED BY BACTERIA AND FUNGI

SANDVIK, O. (1955). En undersøkelse over karakteristiske hemolyseforhold innen den bovine mikrokokkflora. **[Haemolysis typical of bovine strains of staphylococci.]** — *Nord. VetMed.* **7**, 378-396. [In Norwegian. English and German summaries. Abst. from English summary.] **3903**

S. studied the haemolysis produced by a number of strains of bovine micrococci on blood agar media. The type of haemolysis seen with strains producing α and β toxins depended on the relative rates of production and diffusion of these toxins in the media concerned. Frequently the action of one of the toxins inhibited the effect of the other. In a considerable proportion of α - β strains the β toxin was predominant. Sometimes the nature of the medium determined which of the toxins should be predominant.—A.S.

BARNES, L. E. (1955). **Oxytetracycline in bovine mastitis. I. Treatment of mastitis** *Amer. J. vet. Res.* **16**, 386-390 **3904**

B. treated 115 cows with mastitis caused by various organisms. Success varied according to the organisms involved. In general, sub-clinical cases responded better than clinical ones, and recently acquired infection was more readily cured than long-standing infection. In certain circumstances, when given intramuscularly and by the intramammary route, oxytetracycline (terramycin) was irritant.—A.S.

TERPSTA, J. I. & AKKERMANS, J. P. W. M. (1954). Over pneumococceninfecties. **[*Streptococcus pneumoniae* infection in domestic animals.]** — *Tijdschr. Diergeneesk.* **79**, 141-146. [English, French and German summaries.] **3905**

Pneumococcal infections were diagnosed in calves, in pigs and in g. pigs. An outbreak in pigs 4 - 6 weeks old on some farms was transmitted by castration by a layman. Inflammation of the castration wounds was followed by peritonitis, pleuritis and polyarthritis.

—C. A. VAN DORSSEN.

BOOR, A. K. & TRESSELT, H. B. (1955). **Protection of sheep against anthrax by immunization with an antigen prepared *in vitro*.**—*Amer. J. vet. Res.* **16**, 425-428. [Authors' summary slightly modified.] **3906**

The preparation and concentration of protective antigen produced *in vitro* is described. Sheep were effectively protected from anthrax by immunization with the cell-free antigen, either by a course of three i/d injections of an aqueous soln., or one s/c injection of the antigen adsorbed on colloidal aluminium hydroxide.

STENIUS, R. (1955). La prophylaxie de la tuberculose bovine en Finlande. **[Control of bovine TB. in Finland.]**—*Bull. Off. int. Epiz.* **43**, 386-403. **3907**

S. gave a résumé of the history of TB. in cattle in Finland from 1848 to the present time, tracing the development of control measures.

—A.S.

BADNJEVIC, B. (1955). Désinfection à la chaux vive du fumier infecté par des bacilles tuberculeux. **[Disinfection of cattle manure infected with tubercle bacilli by means of quicklime.]**—*Bull. Off. int. Epiz.* **4**, 404-416. **3908**

B. disinfected stable manure by mixing it intimately with quicklime and adding water. The resulting heat killed all or nearly all tubercle bacilli in the samples tested.—A.S.

ROBINSON, E. M. (1955). **Tuberculosis in sheep and goats.**—*J. S. Afr. vet. med. Ass.* **26**, 95-104. [Author's conclusions modified.] **3909**

Persian sheep and boer goats developed lesions of TB. when dosed *per os* with a bovine strain of *M. tuberculosis*, but not when dosed

with a human one. The goat is a satisfactory animal for use in tests for the standardization of tuberculin.

LANZ, E. (1955). Über die Tuberkulose und die intrakutane Tuberkulinisierung beim Schwein. **[TB. and the intradermal tuberculin test in pigs.]**—*Schweiz. Arch. Tierheilk.* **97,** 229-245. [English, French and Italian summaries.] **3910**

For the tuberculin testing of large numbers of pigs, L. found that the most convenient method was to inject bovine type tuberculin i/d into the skin of the back, 10-20 cm. behind the shoulders, to one side of the midline. The site was prepared by clipping the bristles from an area 3 × 4 cm. and by cleaning the skin with a piece of dry cotton wool. A positive reaction after 72 hours consisted of redness, thickening and crust formation over an area of skin 25-50 mm. diameter. Out of 316 pigs on 11 farms 10 were positive. P.M. examination of the reactors and 23 negative pigs confirmed the test results. —R.M.

SCHLIESSER, T. (1954). Zur Frage der Spezifität der Tuberkulin-allergie. **[The specificity of tuberculin allergy.]**—*Rindertuberkulose.* **3,** 193-200. **3911**

G. pigs were inoculated with bovine and avian types of tubercle bacilli and with *Mycobact. johnei.* The comparative tuberculin test, using bovine and avian types of tuberculin and johnin, was most readily interpreted if the tuberculin had been diluted 20-200 times. The most definite reaction was obtained with a dilution of 1:100. —W. G. SILLER.

JESPERSEN, A. & RASMUSSEN, K. N. (1955). **Comparative studies on the effect of dihydrostreptomycin and isoniazid on immunized and non-immunized red mice** (*Clethrionomys g. glareolus Schreb.*) **following intravenous challenge with bovine tubercle bacilli.**—*Acta path. microbiol. scand.* **36,** 548-557. [In English.] **3912**

Experiments using bank voles ("red mice") confirmed, with a few exceptions, work carried out by other authors using g. pigs on the experimental treatment of TB. with streptomycin and *iso*-nicontinic acid hydrazide. [For previous work on the bank vole as an experimental animal, see *V.B.* **25,** 876 & 877.]—R.M.

WEISS, D. W. & DUBOS, R. J. (1955). **Antituberculous immunity induced in mice by vaccination with killed tubercle bacilli or with a soluble bacillary extract.**—*J. exp. Med.* **101,** 313-330. [Authors' summary modified.] **3913**

The authors increased the resistance of mice to tuberculous infection by vaccinating them with a suspension of avirulent tubercle bacilli killed by exposure to 2% phenol. This increase in resistance was demonstrated by (a) observation of survival time of vaccinated animals following challenge infection with a large dose of virulent bacilli, and (b) determination of numbers of virulent bacilli in the spleen 2 weeks after the injection of a small infective dose.

The minimum protective dose of vaccine was about one tenth of the acutely toxic dose. The addition of an adjuvant to the bacillary suspension markedly increased both the protective effectiveness of the vaccine and the duration of the immunity. It also enhanced the toxicity of the vaccine in approx. the same proportion. However, other lines of evidence suggested that toxicity and protective activity were independent, being the manifestations of different bacillary constituents.

Extraction with absolute methanol released from the bacillary bodies a crude soluble fraction possessing low, if any, toxicity, yet capable of eliciting in mice a state of increased resistance to virulent infection. The protective activity of this fraction was low and it accounted for only a small part of the total protective activity of the material.

GRÜN, H. (1955). Zur Wirkung von Isonicotinsäurehydrazid bei der experimentellen Mäuse-Tuberkulose. **[Action of iso-nicotinic acid hydrazide in experimental TB. of mice.]** —*Z. Hyg. InfektKr.* **141,** 46-58. **3914**

Mice experimentally infected with virulent tubercle bacilli of human origin were treated with *iso*-nicotinic acid hydrazide for 21 days, either i/v with doses of 10 μg./g. body wt., or s/c with doses of 25 μg./g. body wt. Neither method effected a cure, but times of survival were longer than in untreated controls. Virulent tubercle bacilli were recovered from the lungs 12 days after completion of treatment.—E.G.

HART, P. D'AROY. (1954). **The role of the host in the chemotherapy of tuberculosis.**—*Brit. med. J.* Oct. 2nd, 767-774. **3915**

A well documented and stimulating review. Of particular interest is a discussion of the role of chemical substances, *e.g.* surface-active agents, which act through the defence mechanism of the body.—A. B. PATERSON.

BAISDEN, L. A., LARSEN, A. B. & VARDAMAN, T. H. (1955). **The influence of age of human-**

type tubercle bacilli cultures on the potency of the culture fluids.—*Amer. J. vet. Res.* **16,** 170-172. [Authors' summary slightly modified.] **3916**

In two experiments, it was shown that the reaction following i/d injection into cattle of tubercle bacillus culture fluid increases with age of culture; in one experiment non-evaporated culture fluid from cultures of the usual age for harvest gave reactions similar to those with evaporated culture fluid.

BEDERKE, G. (1954). Die apathogenen Mycobakterien als Störungsquelle der Tuberkulinreaktion. [**Non-pathogenic mycobacteria as causes of disturbances of the tuberculin test.**] — *Rindertuberkulose.* **3,** 201-224. **3917**

B. recommended the use of the simultaneous tuberculin test with avian and mammalian types of tuberculin in the case of doubtful reactions to the standard test produced by non-pathogenic mycobacteria.—A.S.

DESBORDES, J. & FOURNIER, É. (1954). Études de physiologie bactérienne. La virulence des mycobactéries.—Travaux récents (bacilles tuberculeux et paratuberculeux). [**The virulence of mycobacteria.**]—*Rev. Immunol.* **18,** 50-61. **3918**

Recent research on the chemistry and pathology of bacteria with special reference to mycobacteria is reviewed with the object of relating virulence to biochemical tests. Three tests are described, Dubos' neutral red, Desbordes & Fournier's Nile blue and the Wilson-Hauduroy test based on dichlorophenol-indophenol. It is concluded that the peripheral lipoidal layer of mycobacteria is one of the main factors determining virulence. It is shown that biochemical tests can determine the non-virulence of a given mycobacterium and that the probable virulence of others can be determined.—G. V. LAUGIER.

BEN-DAVID, B. (1954). [**Gangrenous mastitis of milch ewes and its treatment.**] — *Refuah vet.* **11,** 82-83. [In Hebrew.] [Abst. from English summary: p. 101.] **3919**

The author detected an early stage of gangrenous mastitis in sheep, at which abscesses up to the size of a hen's egg could be felt in the parenchyma. Detected at this stage the disease responded to penicillin given intramuscularly or introduced into the udder.—A.S.

LAMMING, G. E., SEAMAN, A. & WOODBINE, M. (1955). **Relationship of ovarian hormones to the pyogenic effect of** *Corynebacterium pyogenes.* [Correspondence.] — *Nature, Lond.* **175,** 126. **3920**

Serum and uterine exudate from cows in the follicular or anoestrous phase or rabbits treated with stilboestrol caused an increase in the rate of haemolysis of horse blood by *C. pyogenes.* It is suggested that this is connected with the relative resistance of the oestrous animal to infection.

—A. SEAMAN.

GYLLENBERG, H. & LAMPILA, M. (1955). **A lactate-utilizing** *Corynebacterium* **from the rumen of cattle.**—*Maataloust. Aikakausk.* **27,** 53-56. [In English. Finnish summary.] **3921**

An organism closely resembling *Corynebact. enzymicum* was isolated from the rumen of a cow. The authors suggested that its presence in the rumen was largely accidental and that the natural habitat of the organism was hay and soil.

—R.M.

COTTEW, G. S. (1955). **Melioidosis.**—*Aust. vet. J.* **31,** 155-158. **3922**

Eleven outbreaks of melioidosis have been observed in domestic animals in Queensland. Six of the outbreaks occurred in goats and 5 in sheep. In sheep respiratory distress and lameness were the major clin. signs observed. Nervous symptoms occurred in some sheep. P.M. findings included polyarthritis, visceral abscesses, ulceration of the nasal mucosa, and meningo-encephalitis. In goats the disease assumed a more chronic character and symptoms were restricted to nasal and ocular discharge, lameness, and abscesses in the udder. The i/d allergic (melioidin) test showed promise as a means of detecting infected goats.—D. C. BLOOD.

CECCARELLI, A. & FONTANELLI, E. (1955). Un focolaio di mal rossino negli ovini. Osservazioni pratiche e ricerche sperimentali. [**An outbreak of** *Erysipelothrix rhusiopathiae* **infection in lambs.**]—*Zooprofilassi.* **10,** 69-88. [English and French summaries.] **3923**

In an outbreak of *E. rhusiopathiae* infection involving young lambs the mortality rate was 35%, with a morbidity rate of 60%. In all cases there was some involvement of joints and in two there was inflammation of the umbilicus. An apparently healthy pig was suspected of being the source of the infection, but this was not proven satisfactorily.—I. W. JENNINGS.

EVANS, W. M. & NAROTSKY, S. (1954). **Two field cases of** *Erysipelothrix rhusiopathiae* **infection in chickens**—*Cornell Vet.* **44,** 32-35. **3924**

The authors described two outbreaks of disease associated with *E. rhusiopathiae* infection

in fowls. In both the origin of the infection was obscure, but both apparently gave rise to cases of erysipeloid in persons handling the birds.

—E. A. GIBSON.

SIKES, D., NEHER, G. M. & DOYLE, L. P. (1955). **Studies on arthritis in swine. I. Experimental erysipelas and chronic arthritis in swine. II. The effects of hormonal therapy on advanced chronic polyarthritis experimentally induced by erysipelothrix infections.** — *Amer. J. vet. Res.* **16,** 349-366 & 367-373. [Authors' summary modified.] **3925**

The s/c administration of either 75 mg. of cortisone daily for four weeks, or 50 mg. daily for one week, or 25 mg. daily for one week, produced marked clin. improvement in 3 advanced chronic cases of arthritis due to *E. rhusiopathiae* infection. In 4 other pigs with similar arthritis, treatment with adrenocorticotropic hormone (ACTH) at a dosage of $\frac{1}{4}$ - 1 unit/lb. body wt. daily for 4 weeks, resulted in no appreciable improvement. A marked reduction in the erythrocyte sedimentation rate was produced by ACTH therapy, but the rates rose to the original or higher level 3 weeks after withdrawal of hormone treatment.

Apart from arthritis, the most constant lesions observed in advanced chronic cases of arthritis occurred in the kidneys and adrenal glands. In such pigs ACTH may be contraindicated, since adrenal rest, not stimulation, is needed.

SOKOL, A., MILÁR, A., ROSOCHA, J., ŠPENÍK, M. & MIKLA, D. (1954). Elektroforetické sledovanie bielkovín séra u králikov v priebehu hyperimunizácie proti červienke ošípaných. **[Electrophoretic examination of serum albumin in rabbits hyperimmunized against swine erysipelas.]**—*Vet. Čas.* **3,** 121-132. [In Slovak. German and Russian summaries. Abst. from German summary.] **3926**

An account of the behaviour of alpha and gamma fractions of the serum proteins of rabbits during the course of immunization against *E. rhusiopathiae* by repeated injections of the organism over a period of 5 weeks.—R.M.

BURKHART, R. L. & ALLEN, G. (1954). **Aureomycin in the treatment of a bacterial infection in mink.**—*Vet. Med.* **49,** 451-452. **3927**

During an epidemic of *Erysipelothrix rhusiopathiae* infection in mink, affected animals were treated with 1 g. chlortetracycline (aureomycin) per gal. of drinking water for 5 days. Within 10 days the epidemic was checked.

—J. M. LEACH.

CARTER, G. R. (1955). **Studies on *Pasteurella multocida*. I. A hemagglutination test for the identification of serological types.**—*Amer. J. vet. Res.* **16,** 481-484. [Author's summary modified.] **3928**

C. described a haemagglutination test for the identification of serological types of *Past. septica,* which yielded highly specific reactions, and was considered to have advantages over other methods. The specific capsular antigens and the hyaluronic acid capsular material were extracted with saline and adsorbed to human type O erythrocytes. To these treated cells were added appropriate dilutions of the specific typing serums. Positive reactions consisted of agglutination of r.b.c. Among 122 strains of *Past. septica* from various geographical sources and animal species typed by the haemagglutination test, 4 different serological types, (A, B, C, and D) were recognized. A large number of mucoid strains and non-capsulated cultures could not be typed. C. discussed briefly the serological results in relation to the nature and occurrence of pasteurellosis in the various species.

SMITH, J. E. (1955). **Studies on *Pasteurella septica*. I. The occurrence in the nose and tonsils of dogs.**—*J. comp. Path.* **65,** 239-245. [Author's summary copied *verbatim.*] **3929**

Past. septica was frequently isolated from the tonsils of healthy dogs, and less commonly from the nose. When present in the nose or tonsil *Past. septica* was usually present in large numbers and was frequently the dominant bacterium recovered from the tonsil. The nasal incidence of *Past. septica* was greatest in young adult dogs and was higher during the winter than during the summer months. These facts may be related to the epidemiology of respiratory diseases in the dog including canine distemper. *Past. septica* was commoner in male dogs than in females.

There is some similarity between the status of *Past. septica* in the nose and throat of dogs and that of the pneumococcus in the nose and throat of human beings.

CARTER, G. R. (1954). **Observations on the pathology and bacteriology of shipping fever in Canada.**—*Canad. J. comp. Med.* **18,** 359-364. **3930**

In an outbreak of "shipping fever" in cattle the principal pathological process was an acute, bilateral broncho-pneumonia. *Pasteurella haemolytica* was isolated from 15 and *Past. septica* (*multocida*) from 10 out of 26 cases. *Corynebacterium pyogenes* was isolated in 2 instances

and a pleuropneumonia-like organism was recovered from 4 calves. It was concluded that shipping fever as it appears in Central Canada is a true pasteurellosis.—R. GWATKIN.

HAMMOND, C. W., TOMPKINS, M. & MILLER, C. P. (1954). **Studies on susceptibility to infection following ionizing radiation. I. The time of onset and duration of the endogenous bacteremias in mice.**—*J. exp. Med.* **99**, 405-410. **3931**

HAMMOND, C. W., COLLING, M., COOPER, D. B. & MILLER, C. P. (1954). **Studies on susceptibility to infection following ionizing radiation. II. Its estimation by oral inoculation at different times post irradiation.**—*Ibid.* 411-418. **3932**

I. Fifty-four 20-g. female mice were exposed to 550r irradiation and after a week blood samples withdrawn daily from the tail were cultured for 10 days. In all except 7 death was shown to be due to bacteraemia, mainly of *Pseudomonas*. Most of the infections arose 7-15 days after irradiation.

II. A culture of *Ps. pyocyanea* was introduced into the drinking water of groups of irradiated mice at various intervals after irradiation. The lowest mortality due to *Ps. pyocyanea* occurred in groups given the infected water after an interval of 2 hours and the highest in those given it after 11 days. The total mortality (due to organisms other than those introduced) remained the same in all groups.—A. SEAMAN.

PHILLIPS, J. E. (1955). **The experimental pathogenicity in mice of strains of *Proteus* of animal origin.**—*J. Hyg., Camb.* **53**, 212-216. **3933**

P. stated that there is in the literature some confusion as to the pathogenicity of various species of *Proteus* for lab. animals, possibly resulting from the failure of some authors to estimate correctly the numbers of viable organisms used in their experiments. He studied the pathogenicity for mice of 67 strains when given i/v and occasionally s/c or i/p. Animal strains in large i/v doses produced septicaemia. Smaller doses by the same route produced necrotic lesions of various sizes in the kidneys. Inoculation by the other routes produced septicaemia but no kidney lesions. He discussed the localization of lesions in the kidneys.—A.S.

ULBRICH, F. (1954). Serologische Typendifferenzierung und Prüfung toxischer und immunisierender Eigenschaften von *Escherichia coli*-stämmen, die von gesunden und von an Coliruhr erkrankten Jungtieren isoliert wurden. **[Serological typing and the toxic and immunizing properties of strains of *Bact. coli* isolated from healthy young animals and from young animals with *Bact. coli* diarrhoea.]**—*Zbl. VetMed.* **1**, 603-659. [English, French and Spanish summaries.] **3934**

Strains of *Bact. coli* isolated from fowls with "coli-granulomas" were closely related serologically, and differed from strains isolated from healthy fowls. Of 176 strains isolated from sick fowls, piglets, calves and lambs 53% could be typed by the use of Group O sera. Only 9% of 136 strains from healthy animals could be typed in this way.—A.S.

HOP, A. & ASK, T. (1955). Forekomst av koliforme bakterier i faeces fra forskjellige dyrearter og i jordprøver. Betydningen av disse bakterier ved den hygieniske bedømmelse av drikkevann. **[The occurrence of coliform bacteria in faeces from various species of animal and in soil samples. The significance of such bacteria in the hygiene of drinking water.]**—*Nord. VetMed.* **7**, 397-410. [In Norwegian. English and German summaries. Abst. from English summary.] **3935**

To obtain an overall picture of the distribution of coliform bacteria in Norway the authors examined faeces from human beings, horses, cattle, sheep, pigs, hens and seagulls; soil samples from cultivated and uncultivated land; and water samples from wells and various other sources. *Bact. coli* was present in 91·5% of all faecal samples and in 5% of all soil samples, though never in soil from uncultivated areas. They concluded that the presence of *Bact. coli* is a certain indication of faecal pollution.

Seagull faeces, compared with the other faeces studied, had a lower content of *Bact. coli* and a higher content of coliform organisms and atypical forms. Seagulls may contaminate reservoirs.—A.S.

NATVIG, H. & NILSEN, B. F. (1955.) **Experimental study of the longevity and viability of *Escherichia coli* outside the animal organism.** — *Acta path. microbiol. scand.* **37**, 111-115. [In English.] [Authors' conclusions modified.] **3936**

This study seems to indicate that the longevity of *Bact. coli* is highly reduced outside the animal body, and that the bacteria are not capable of adapting themselves to soil environment. Most strains therefore die rather rapidly under exposed conditions. The experiments confirmed that *Bact. coli* is highly suitable as an indicator of faecal contamination. The demon-

stration of *Bact. coli* in water, milk and other foods should be considered evidence of recent faecal contamination.

SATO, G., OSAMURA, K., SHIMIZU, K., HIRATO, K. & HIRAMA, H. (1954). **Studies on equine paratyphoid vaccine. III. Clinical reactions and antibody responses of horses to chrome vaccine of** *Salmonella abortus equi*.—*Jap. J. vet. Res.* **2,** 21-32. [In English.] **3937**

Chrome vaccine administered i/m was considered better than either heat-killed vaccine or chrome vaccine with oil adjuvant. It produced little or no local or systemic reaction and conferred a stronger immunity. The duration of immunity was shorter in young foals than in 2-year-old colts. There was a marked tendency to suppuration when the vaccine was injected i/d or s/c. This was noticed also in the case of chrome vaccine with oil adjuvant.—T.E.G.R.

NIELSEN, F. W. (1954). Les infections à *Salmonella* dans les troupeaux de bovins du Danemark. **[Bovine salmonellosis in Denmark.]**—*Bull. Off. int. Epiz.* **42,** May, pp. 746-749. **3938**

N. presented figures indicating the rise in the number of cases of *Salmonella* infection in Denmark between 1948 and 1954. He attributed this to insufficient inspection of imported meat- and bone meals, and advocated stricter control. —A.S.

KRANEVELD, F. C., ERBER, M. & MANSJOER, M. (1954). Enkele salmonella-vondsten bij zieke, niet aan salmonellosis lijdende varkens op Java. **[Some salmonellae isolated from pigs in Java.]**—*Hemera zoa.* **61,** 314-320. [In Dutch; English, German and Indonesian summaries.] **3939**

An account of the isolation of *S. meleagridis*, *S. derby* and *S. cholerae-suis* from carcasses of pigs that had died from other causes than salmonella infection.—C. A. VAN DORSSEN.

LUDLAM, G. B. (1954). **Salmonella in rats, with special reference to findings in a butcher's by-products factory**—*Mon. Bull. Minist. Hlth Lab. Serv.* **13,** 196-203. **3940**

In a factory which received offal from abattoirs and butchers and which prepared casings, dripping and dried blood for human consumption as well as tallow and fertilizers, there was a big increase in the rat population coincident with overloading of the storage rooms at the time of the autumn slaughterings. There was an increase in the percentage of salmonellosis in this rat population (from 4·8% normal to 60%). Eleven varieties of salmonella were found of which 4 were probably exogenous.—R. MACGREGOR.

MORTELMANS, J. & DÉOM, J. (1955). Le problème de la prophylaxie de la typhose aviaire au Congo belge. **[Prevention of fowl typhoid in the Belgian Congo.]**—*Bull. Off. int. Epiz.* **44,** May, pp. 429-432. [English summary.] **3941**

In the Belgian Congo salmonellosis of fowls is of considerable importance. It can be caused by *S. gallinarum*, *S. pullorum*, or *S. typhimurium*. The authors recommended vaccination by a killed vaccine containing 5 virulent strains. Two injections of 1 ml. of vaccine are given at 15-day intervals, and vaccination should be repeated every 6 months.—A.S.

SMITH, H. WILLIAMS. (1955). **The longevity of** *Salmonella gallinarum* **in the faeces of infected chickens.** — *J. comp. Path.* **65,** 267-270. [Author's conclusions copied *verbatim*.] **3942**

The average survival time of *Salm. gallinarum* in 76 faecal specimens collected from infected chickens was 10·9 days (range < 3-37 days) when the faeces were kept in the inner compartment of a fold unit. The average for duplicate specimens kept in the open air was 8·9 days (range < 3-31 days). Long periods of dry weather appeared to favour survival time, an observation that was confirmed experimentally.

HARBOURNE, J. F. (1955). **The isolation of** *Salmonella gallinarum* **in wild birds.**—*J. comp. Path.* **65,** 250-254. [Author's summary modified.] **3943**

S. gallinarum was recovered from seven rooks and one pigeon killed in areas of Yorkshire where fowl typhoid was enzootic. *S. thompson* was recovered from the feet and feathers of one rook. Fowl typhoid was diagnosed in one partridge. When 13 jackdaws and 4 rooks were infected artificially with *S. gallinarum* by various routes 11 of them died with acute disease. The possibility that rooks and other wild birds may spread the disease amongst poultry is discussed.

WESTRING, E. (1954). Nogle forsøg med terramycinbehandling af køer med abortus-Bang reaktion i maelken. **[Effect of treatment with terramycin on the reaction of the milk to the ring test for brucellosis.]**—*Dansk Maanedsskr. Dyrlaeg.* **63,** 321-324. **3944**

Brucella organisms may be absent from the blood-stream, yet present in the udder tissues. The milk from infected cows which, prior to

calving, had 250 mg. terramycin injected into each quarter of the udder was free from *Br. abortus*.—F. R. PAULSEN.

ANCZYKOWSKI, F. & MURAT, P. (1955). O zastosowaniu barwionej zawiesiny pał. brucella w odczynie aglutynacyjnym. [**Use of stained brucella suspensions in the agglutination reaction.**]—*Méd. vét., Varsovie.* **11,** 342-344. **3945**

Stained brucella antigen was tested on 3,487 serum samples known to be positive, suspicious or negative. The results obtained did not differ from those of agglutination tests carried out with unstained antigen, but the use of stained antigen facilitated the reading of the test. Although some difficulties were experienced when r.b.c. were present in a serum sample, on the whole the introduction of stained suspensions was considered to be advantageous and the author states that it is proposed to carry out trials of the use of stained antigen in agglutination tests on milk and semen.—M. GITTER.

HESS, E. (1954). Le contrôle vétérinaire de la production du lait. [**Veterinary inspection of milk with special reference to culture of *Brucella abortus* from cream samples.**] — *Bull. Off. int. Epiz.* **42,** May, pp. 558-564. Addendum: pp. 564-568. [English summaries pp. 563-564 & 568.] **3946**

H. described a method for the serial testing of milk with special reference to cultural diagnosis of *Br. abortus* from cream samples obtained under sterile conditions. In the canton of Zürich a policy of slaughter of carriers (excreting the organism either in the after-birth or in the milk) has been responsible for a 60-80% reduction in the incidence of the disease within two years.

—W. R. BETT.

FILIPOVITCH, D. (1955). Résultats de recherches sur l'influence de la brucellose sur la qualité du lait de vaches. [**Effect of brucella infection on the quality of cow's milk.**]—*Bull. Off. int. Epiz.* **44,** May, pp. 444-451. **3947**

Brucellosis had no effect on the quality of the milk of affected cows.—A.S.

HUDDLESON, I. F. (1955). **A study of factors that influence the isolation and growth of *Brucella* in or on culture mediums.** — *Proc. 58th Ann. Meet. U.S. live Stk. sanit. Ass.*, Omaha, 1954. pp. 123-124. **3948**

The growth of small numbers (5 - 60) of a fastidious, CO_2-dependent strain of *Br. abortus* on 5 liquid and 5 agar media was studied. The importance of optimal pH was established. None of the liquid media as recommended showed visible growth in 72 hours but growth was promoted by the addition of a sterile bacterial extract, aged blood serum or serum albumin, even when pH was not optimal. Growth of brucella in the presence of whole blood is inhibited by two main factors, the antibody-complement system, and the glycolytic action of r.b.c. The latter is counteracted by high pH and by the addition of Na_2CO_3.

—C. C. BANNATYNE.

HERTER, R. (1955). Brucella-abortus-Infektion bei Tierärzten. [*Br. abortus* **infection in veterinary surgeons.**] — *Zbl. Bakt. I. (Ref.)* **156,** 171. [Only abst. given. Abst. from abst.] **3949**

H. published the results of a questionnaire which was sent to 3,385 West German veterinarians. About 16% had contracted brucellosis in the course of their work.—A.S.

KARSTEN. (1955). Über die in den letzten Jahren in der Deutschen Bundesrepublik aufgetretenen Brucellosefälle beim Schwein und die Eigenschaften der Erreger. [**Brucellosis in pigs in Western Germany and the properties of the causal organism.**] — *Dtsch. tierärztl. Wschr.* **62,** 219-225. **3950**

Out of 16 strains of brucella recently isolated from pigs in Germany, 15 were classified as *Br. suis* and one as *Br. abortus*. Nine of the strains of *Br. suis* did not produce hydrogen sulphide. K. discussed the incidence and spread of brucellosis in pigs in Germany since 1951, and gave a map showing the distribution of outbreaks.

—R.M.

HARPER, G. J. (1955). *Brucella suis* **infection of guinea-pigs by the respiratory route.**—*Brit. J. exp. Path.* **36,** 60-70. [Author's summary copied *verbatim.*] **3951**

Multiplication of *Br. suis* in the lungs of guinea pigs exposed by the respiratory route to small numbers of organisms has been shown to be actively in progress as early as 48 hrs. after the exposure. In the absence of any evidence of invasion of lung tissue the findings are in keeping with the hypothesis that the multiplication takes place on the surface of lung epithelium and that organisms are transported by phagocytes to lymph nodes from which sites the infection becomes generalised. Observations on the persistence of *Br. suis* (Strain PSIII) in the infected animal showed that tissue was still actively infected 215 days after exposure by the respiratory route to a minimal infecting dose.

TRILENKO, P. A. (1954). **[Peculiarities of agglutination reaction and the ring test of blood sera and milk of sheep for the diagnosis of brucellosis.]**—*Veterinariya, Moscow.* **31,** No. 1, pp. 34-38. [In Russian.] **3952**

Whereas the serum of reacting cows gives a clear-cut agglutination with brucella antigen, that of sheep has a marked pro-zone and sometimes fails to agglutinate. If, however, the serum is diluted in 5 - 20% NaCl soln. the agglutination is normal, without a pro-zone, and the results correspond closely with those of the complement-fixation test. Also the ring test can be used with milk of immune sheep if the milk is diluted 1 : 1 with 10% NaCl.—A. MAYR-HARTING.

LAFENÊTRE, H. (1955). La vaccination des espèces ovine et caprine contre la brucellose. **[Vaccination of sheep and goats against brucellosis.]**—*Bull. Off. int. Epiz.* **44,** May, pp. 290-300. [English summary.] **3953**

The Ministry of Agriculture in France has conducted trials of a vaccine composed of a living smooth avirulent strain (*Brucella abortus ovis* 112) and a killed culture of a virulent strain. This has given very good results in sheep, and was being tested in cattle at the time of writing. —A.S.

CARPENTER, C. M., NELSON, E. L., KLEIN, S. J., RAWLINGS, B. E., BOAK, R. A. & WEIMER, H. E. (1955). **Effect of oxytetracycline (terramycin) on agglutinin titers in guinea pigs with experimental brucellosis.**—*J. Immunol.* **74,** 281-285. **3954**

Specific agglutinin titres in brucella-infected g. pigs fell following treatment with oxytetracycline, the greatest fall being associated with the largest dosage of the drug. Titres in non-infected g. pigs receiving dead brucella antigen did not fall after similar drug treatment. The authors conclude that the phenomenon is due to the effect of the antibiotic on viable brucella organisms, and not to interference with the antibody-forming mechanism.—C. C. BANNATYNE.

NYIREDY, I. (1954). Brucella-studien. **[Studies on brucella.]** — *Acta vet. hung.* **4,** 111-139. [In German. Russian summary.] **3955**

In all, 102 strains of *Br. abortus, Br. suis* and *Br. melitensis* were examined and it was found that *Br. suis* was very much more sensitive to bile and produced much more catalase than the other two strains. As there is no basic difference in the antigenic structure of the three strains, nor in the symptomatology and pathology of the infections, N. believes *Br. abortus* and *Br. suis* to be variants of *Br. melitensis.* —W. G. SILLER.

ROOTS, E. & v. SPROCKHOFF, H. (1954). Die Methodik der quantitativen Agglutininabsättigung zur Gewinnung typenspezifischer Brucellen-Sera. **[The technique of quantitative agglutinin absorption for the production of type-specific brucella sera.]**—*Zbl. VetMed.* **1,** 660-672. [English, French and Spanish summaries.] **3956**

The authors described in detail the method used in producing type-specific brucella sera by quantitative agglutinin absorption; they pointed out that *Br. melitensis* can be differentiated readily from *Br. abortus* and *Br. suis* if the absorption is carried out strictly quantitatively. The antigenic structure must be taken into consideration in the selection of brucella strains. Old cultures of *Br. melitensis* may behave like *Br. abortus* in the absorption tests.—W. G. SILLER.

GIRARD, G. (1955). La tularémie du chien en France. Maladie naturelle et expérimentale. **[Tularaemia in dogs in France.]**—*Bull. Acad. vét. Fr.* **28,** 103-110. Discussion: pp. 110-112. **3957**

A virulent culture of *Brucella tularensis* inoculated s/c in the dog produces a local and general reaction. When the dog contracts infection in the normal manner, however, namely by eating infected meat, it develops no symptoms and disease is only demonstrable by the presence of agglutinins. The only way in which the dog is likely to transmit disease to man or another animal is by biting, or by licking an open wound, shortly after eating infected meat.—A.S.

STOENNER, H. G. (1954). **The management of herds affected by bovine leptospirosis.**—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.,* Seattle, 1954. pp. 83-87. **3958**

S. discussed *L. pomona* infection of cattle in the U.S.A., its importance from an economic and a Public Health point of view, and its control by sanitary measures and immunization. —T.E.G.R.

HOAG, W. G. & BELL, W. B. (1955). **An immunogenic agent for the protection of cattle against** *Leptospira pomona.* — *Amer. J. vet. Res.* **16,** 381-385. **3959**

The authors described the extraction of a soluble antigen from *L. pomona* cultures by means of acetic acid at 100°C. The purified product, injected s/c, gave good protection in calves.—A.S.

VAN DER HOEDEN, J. (1955). *Leptospira canicola* **in cattle.**—*J. comp. Path.* **65,** 278-283. [Authors' conclusions slightly modified.] **3960**

During 1949-51 many cattle with leptospirosis in Israel were infected by the *L. grippotyphosa* serological type (6). From 1952 onwards the picture changed in so far that all cases occurred in a different area and were caused by *L. canicola.* In 4 herds the *L. canicola* infection caused fever of short duration, inappetence, jaundice, haemoglobinuria and decreased milk yield. In the majority of cases however the infection remained clinically inapparent. Abortion seemed to be associated with *L. canicola* infection in heifers.

L. canicola was cultivated from the kidneys of a calf which died after a short illness. Calves born to reacting cows had high agglutinin titres against *L. canicola* which persisted for several months. In addition the milk of infected cows often contained agglutinins for *L. canicola* in lower titre. A recently isolated canine strain of *L. canicola* dropped into the conjunctival sac of a calf induced an interstitial nephritis, leptospira being excreted in the urine.

The main source of infection of cattle was presumed to be the jackal. No infections were observed among persons handling the infected cattle.

VAN DER HOEDEN, J. (1954). **The pathogenicity of leptospiras to field rodents in Israel (a new test animal for use in leptospira research).**—*J. infect. Dis.* **95,** 213-219. **3961**

Strains of a number of species of leptospira from human and animal sources were inoculated by various routes into g. pigs, albino mice, hamsters, voles and gerbils. All of the rodents were susceptible to a number of strains. The vole *Microtus guentheri* was tolerant to most strains, the organisms being found in the kidneys without giving rise to clinical symptoms. Illness and death did, however, occur occasionally with *L. icterohaemorrhagiae* and *L. pomona.* It was concluded that the carrier state was common in this species, a finding which is in agreement with the field observation of high agglutinin titres in these voles in regions where human and bovine leptospirosis is frequent. The author recommended two gerbil species, *Meriones shawi* and *M. cr. sacramenti* as being particularly suitable for leptospira research. He discussed his findings.

—A.S.

REINHARD, K. R. & HADLOW, W. J. (1954). **Experimental bovine leptospirosis—pathological, hematological, bacteriological, and serological studies.**—*Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 203-216. [Authors' summary modified.] **3962**

Leptospiral strains of recent isolation, especially those maintained in continuous passage in animals, were found to be most satisfactory for the production of the experimental infection in cattle. Strains cultivated long in synthetic medium or in chick embryos were relatively avirulent.

Of 9 criteria of infection selected on the basis of field and lab. experience for use in this study, only 3 proved to be highly practicable:—(a) the presence of the organism in the blood, (b) serological response, and (c) development of pathological lesions. For the study of experimental and field infection, it was found advisable to employ all 3 criteria, coupled with clin. observations and tests for carriers. Tests for anaemia and transitory leucopenia may serve as additional tests in the more severe infections.

Egg-propagated leptospira of the 100th serial passage proved to be non-infective when inoculated into mature cattle, but served to protect them from the effects of challenge 17 months later with virulent organisms of the homologous serological type.

FRAGA DE AZEVEDO, J. & COSTA FARO, M. (1954). Sur l'infection de la race porcine portugaise, par les leptospires. **[Leptospira infection in pigs in Portugal.]**—*C. R. Soc. Biol., Paris.* **148,** 1703-1705. **3963**

The authors obtained cultures of leptospira (typing was still in progress at the time of reporting) from the kidneys of 5 out of 66 pigs in Southern Portugal. Two of the strains were not pathogenic for either g. pigs or hamsters. A third strain caused the death of hamsters on the 9th and 10th days. Further investigations were in progress.—T.E.G.R.

FREUDIGER, U. (1955). Observations sur les leptospiroses des chiens de Paris. **[Observations on leptospirosis in dogs in Paris.]**—*Rec. Méd. vét.* **131,** 319-332. **3964**

Of a total of 1,205 dogs examined 12 had a very high agglutination titre and 3 had a raised titre indicating recent infection. The incidence (1%) is greater than previously estimated and is mainly due to *L. canicola* (18 cases to 3 of *L. icterohaemorrhagiae*). The symptoms of infection are listed and 5 detailed case reports given.

—A. SEAMAN.

TRBIĆ, B. & PAUNOVIĆ, S. (1955). *Leptospira sejroe* **infection in dogs.]** —*Acta. vet., Bel-*

grade. **5**, No. 2, pp. 79-81. [In Serbian. Abst. from German summary.] **3965**

A report of *L. sejroe* infection in a dog; with a description of clinical symptoms. The authors stated that this organism had not previously been found in the dog.—A.S.

SCHNEIDER, M. D. (1954). **Polysaccharide antigens of leptospires.**—*J. infect. Dis.* **94**, 297-305. **3966**

The upper aqueous phase of chloroform- and N-amyl alcohol-treated, disintegrated cells of *L. icterohaemorrhagiae, L. canicola,* and *L. bataviae* each contained a substance, designated fraction 1, which reacted in the c.f. test preferentially with homologous hyperimmune serum, but cross-reacted with heterologous hyperimmune serum within the leptospira group. Nucleic acids and trace amounts of protein were probably not determinants of serological activity, the active principle probably being a complex polysaccharide, largely pentosan in nature.—A. ACKROYD.

MÖLBERT, E. (1955). Elektronenmikroskopische Untersuchungen zur Morphologie von Leptospiren. [**Electron microscopy of leptospires.**]—*Z. Hyg. InfektKr.* **141**, 82-90. **3967**

M. described the structure of leptospires as seen under the electron microscope. There was a peripheral and a central portion of the protoplasm. In the peripheral portion there was a fibrillar bundle about 250Å in diameter, giving the organism the appearance of a spiral staircase, with the fibrillar bundle as the central pillar. By alternate contraction and expansion this bundle appeared to play a role in the locomotion of the organism.

Length of leptospires varied from 10-40 μ, and their diameter from 0·9-0·11 μ. Multiplication by transverse fission was observed.—E.G.

CZEKALOWSKI, J. W., MCLEOD, J. W. & RODICAN, J. (1954). **Observations on the nutrition of leptospira based on the development of Dinger's phenomenon.**—*J. gen. Microbiol.* **10**, 199-208. **3968**

The addition of various peptones to a basal medium of 10% (vol./vol.) rabbit serum in diluted meat extract revealed that they contained some substances which promoted the growth of leptospira and others which were inhibitory. Witte's peptone was the most favourable. Tryptic digest broth (Hartley's) gave results at least as good. Inhibitory effects may develop on autoclaving peptone-containing media, especially at high pH, or on leaving sterilized solns. to stand at room temp. for considerable periods. The range of pH suitable for development of cultures is narrow, the optimal being 7·6, but leptospira are more tolerant to divergences on the alkaline side.—A. ACKROYD.

IYER, S. V. & RAMACHANDRAN, S. (1954). **Studies on black quarter vaccines. The effect of adjuvants in enhancing their immunising value. Part I.**—*Indian vet. J.* **31**, 112-129. **3969**

Calves and g. pigs immunized with alum-precipitated, mixed *Cl. chauvoei* and *Cl. septicum* vaccine, prepared either in Noguchi medium or in cysteine-hydrochloride broth, withstood higher challenge doses of virulent *Cl. chauvoei* than those immunized with vaccine without the adjuvant.—R. N. MOHAN.

GUALANDI, G. L. (1955). L'infezione da "Clost. Chauvoei" nel suino. [*Cl. chauvoei* **infection in pigs.**]—*Arch. Vet. ital.* **6**, 57-61. [English, French, Spanish and German summaries.] **3970**

An account of an outbreak of *Cl. chauvoei* infection among 34 pigs with 15 deaths within two days. There were no recoveries. Oedema of the pharyngeal region and degenerative changes in the myocardium were constant lesions.

—T.E.G.R.

SAFFORD, J. W. & SMITH, L. D. (1954). **A study of the epizootiology of bacillary hemoglobinuria.**—*Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 159-161. Discussion: pp. 161-162. [Authors' summary modified.] **3971**

From observations made in Montana, it would appear that bacillary haemoglobinuria may be spread by (1) direct animal contact, (2) carrier animals, (3) infected meat, and (4) contaminated water. The disease occurs only in areas west of the continental divide in which a large percentage of the cattle are infested with *Fasciola hepatica.*

GRINER, L. A. & BALDWIN, E. M., Jr. (1954). **Further work on hemorrhagic enterotoxaemia of infant calves and lambs.**—*Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 45-51. **3972**

A general account of the distribution, clinical manifestations, histopathology and diagnosis of haemorrhagic enterotoxaemia of young calves and lambs caused by *Cl. welchii.* Type C, together with discussion of the authors' own work on its immunology.—T.E.G.R.

BIZZINI, B. RAYNAUD, M. (1954). Études sur la toxine α de *Welchia perfringens*. Rapports entre croissance et toxinogenèse. [**Studies on**

the α-toxin of *Cl. welchii*. Relationships between the growth and toxin formation.]—*C. R. Acad. Sci., Paris.* **239,** 122-124. **3973**

In freshly-transplanted actively-growing cultures of *Cl. welchii* there is a delay of about an hour before α-toxin can be detected in the culture medium. The use of large inocula reduced this delay a little.—R.M.

DAVIES, J. R., MORGAN, R. S. & WRIGHT, E. A. (1955). **The susceptibility of pigeons to tetanus toxin.** — *J. Path. Bact.* **69,** 295-298. [Authors' summary modified.] **3974**

On an equal-weight basis, the pigeon is nearly 1000 times more resistant to i/v administered tetanus toxin than the mouse. From the results of direct injection into the c.n.s. of these birds it is inferred that this high degree of resistance is due to an intrinsic insusceptibility of their brain tissues and not to an abnormally impermeable blood-brain barrier.

DIRR, K. (1955). Zur Darstellung von Tetanus- und Diphtherie- Antitoxin. [**Demonstration of tetanus and diphtheria antitoxin.**] — *Hoppe-Seyl. Z.* **300,** 237-244. [English summary modified.] **3975**

Highly concentrated horse sera containing tetanus and diphtheria antitoxin were precipitated with 1·55% uranyl acetate solution. The precipitate contained "native antitoxin" together with other serum proteins while the filtrate contained, probably pure, antitoxin.

GUILLAUMIE, M., KRÉGUER, A. & GEOFFROY, M. (1955). Notes sur quelques propriétés des toxines engendrées par differents types de *Cl. botulinum*. [**Characteristics of various *Clostridium botulinum* toxins.**] — *Ann. Inst. Pasteur.* **88,** 44-59. **3976**

The haemolytic activity of Type A toxin, tested on washed sheep r.b.c., was weak and rapidly lost at 2°C., that of Type B was lost gradually at 2° but could be restored by the addition of cysteine, that of Type C was oxidized rapidly at 2° but restored by cysteine, while Type D was haemolytic only in the presence of cysteine.

Non-haemolytic filtrates precipitated lipids from egg yolk-saline emulsions. The filtrate from Type A toxin was inactivated by heating for 3 min. at 100° but not at 70°; that from Type C retained some activity after 5 min. at 100°C.

—A. SEAMAN.

VAN NIEUWENHUYSE, E. (1955). Het overzetten van de Vibrio foetus-infektie in de kunstmatige inseminatie. [**Transmission of *V. fetus* infection by artificial insemination.**] —*Vlaam. diergeneesk. Tijdschr.* **24,** 137-143. [In Flemish, English, French and German summaries.] **3977**

Forty heifers had been inseminated in error with semen of a bull that transmitted *Vibrio fetus* infection by natural service. The semen had been diluted with an egg yolk-citrate diluent and treated with 1 g. streptomycin and one million units penicillin per l. and exposed to room temperature for one hour. One of the heifers gave a doubtful reaction to the mucus-agglutination test with *V. fetus*. One gave a positive reaction to both *V. fetus* and *Trichomonas foetus* antigens and since the bull in question was free from *Tr. foetus* infection it is thought that the heifer must have been previously served by another bull. Another of the heifers gave a positive reaction to *Tr. foetus* antigen and in her case investigations at the farm indicated the likelihood that she had been served previously by an infected bull.

The author considers that this experience indicates that dilution of semen and addition of antibiotics obviates the risk of transmission of *V. fetus* by infected semen.

—C. A. VAN DORSSEN.

NEUMANN, H.-J. & STEINBORN, H. (1954). Die Vibrionen-Dysenterie und ihre Behandlung [**Vibrionic dysentery in pigs and its treatment.**] — *Prakt. Tierarzt.* No. 10, pp. 248, 251 & 252. **3978**

The authors described the symptoms and P.M. findings in vibrionic dysentery of pigs, which has occurred in Schleswig-Holstein, Germany, since 1951. Success was claimed for treatment of the condition with "Vibriogrün", a proprietary preparation containing a quinone-acridine compound and the vitamin B complex. This preparation was administered in the drinking water or in whey or, for piglets, as a paste applied to the tongue. It was given once daily for 3-6 consecutive days.—R.M.

MAJOR, C. P., MCDOUGAL, J. D. & HARRISON, A. P., Jr. (1955). **The effect of the initial cell concentration upon survival of bacteria at −22°C.**—*J. Bact.* **69,** 244-249. **3979**

The death rate of a discrete bacterial cell suspension becomes less with increasing time until the population is stable. The death rate of Gram-negative organisms is proportional to the initial concentration unless the culture is aerated, when they resemble the Gram-positive organisms in having a constant percentage survival.

—A. SEAMAN.

OCHI, Y., OGATA, M., KONISHI, S. & YOSHIDA, E. (1954). **[Studies on the treatment and prevention of reproductive failures in livestock. I. Bacteriological examination of the vagina and uterus of healthy cows.]** — *Jap. J. vet. Sci.* **16**, 219-226. [In Japanese. Abst. from English summary.] **3980**

Using agar and blood agar plates the authors cultured swab material taken from the vagina and uterus of healthy cattle immediately after slaughter. They named the bacterial groups isolated in order of incidence.—A.S.

REED, R. E. (1954.) **Serology and coccidioidin skin testing in diagnosis of canine coccidioidomycosis.**—*Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 199-203. **3981**

The i/d coccidioidin test (applied in the skin of the flank) produced a positive reaction in 11 of 12 dogs in which infection was subsequently confirmed P.M. and in 7 of 8 dogs with typical symptoms. There was no reaction in 7 normal dogs; 11 of 19 dogs with indistinct symptoms reacted. Sera from 10 dogs in which infection was subsequently confirmed P.M. were tested for precipitins; diagnostic titres were present in 7 of these. Of the same 10 sera only 3 contained complement-fixing antibody.—T.E.G.R.

ROLLE, M. & KOLB, E. (1954). Zur Frage des Vorkommens von Schimmelpilzen (Mucoraceae, Aspergillaceae) im Magen-Darmkanal der Haustiere. **[Occurrence of moulds (Mucoraceae, Aspergillaceae) in the gastro-intestinal tract of domestic animals.]**—*Z. Hyg. InfektKr.* **139**, 415-420. **3982**

The authors found that spores of thermophilic Mucoraceae and Aspergillaceae, which are normally present in large numbers in hay, straw, and air, passed through the alimentary canal of horses, cattle, pigs and sheep and could be cultured from faeces. Presence of *Bact. coli* inhibited growth in cultures of *Absidia ramosa.*

—E.G.

MCDIARMID, A. (1955). **Aspergillosis in free-living wild birds.**—*J. comp. Path.* **65**, 246-249. [Authors' summary copied verbatim.] **3983**

Eighteen cases of aspergillosis have been confirmed in free-living wild birds. The species affected were the Herring gull, (*Larus argentatus*), 3; jackdaw, (*Corvus monedula spermologus*), 1; and wood-pigeon, (*Columba palumbus*), 14. With the one exception of *A. nidulans* in a wood-pigeon, the causal agent was *A. fumigatus.* The lesions in all cases were extensive, involving most of the viscera.

CHAKRABORTY, A. N., GHOSH, S. & BLANK, F. (1954). **Isolation of *Trichophyton rubrum* (Castellani) Sabouraud, 1911, from animals.** —*Canad. J. comp. Med.* **18**, 436-438. **3984**

T. rubrum was isolated from a dog and two cows. The dog had lesions on the buttocks and trunk. One cow had small raised plaques and scabs around the head. The other had ringworm-like lesions all over the body. No infected hairs were found in any of these animals.

—R. GWATKIN.

BLANK, F. & CRAIG, G. E. (1954), **Family epidemics of ringworm contracted from cattle.**—*Canad. med. Ass. J.* **71**, 234-235. **3985**

A brief clinical note on a few cases of *Trichophyton discoides* infection.

MONTEVERDE, J. J. & GARBERS, G. V. (1953). Fertilidad e infecciones genitales de las yeguas. Infecciones por *Pseudomonas aeruginosa.* Infección por *Candida parakrusei.* **[Sterility and genital infections in mares with *Pseudomonas pyocyanea* and *Candida parakrusei.*]**—*Rev. Med. vet., B. Aires.* **35**, 117-128. [English summary.] **3986**

An account of 3 cases of metritis and cervicitis with irregular oestrus in mares, apparently associated with infection with *Ps. pyocyanea,* which appeared in pure culture in one of the cases. This infection accounted for only about 1% of cases of genital infection examined. In one case a concomitant infection with *C. parakrusei* was diagnosed.—H. E. HARBOUR.

FRANÇA E SILVA, A. E., ROSA AZEVEDO, J. A. & MANSO RIBEIRO, J. (1955). La péripneumonie contagieuse des bovins. **[Bovine contagious pleuro-pneumonia in Portugal.]**—*Bull. Off. int. Epiz.* **44**, May, pp. 381-395. [English summary.] **3987**

An account of the disease in Portugal since its introduction in 1951. Control is based on compulsory notification; restriction of movement; slaughter of clinically affected animals and of those giving positive or doubtful reactions to the c.f. test; vaccination of in-contact animals negative to the test; and periodic blood testing in affected areas. [It is not stated from whence the disease was introduced into Portugal.]—A.S.

GERLACH, F. (1955). Etat actuel des recherches en cours sur la pleuropneumonie contagieuse des bovidés et des chèvres en Angola. **[Bovine and caprine contagious pleuro-pneumonia in Angola.]**—*Bull. Off. int. Epiz.* **44**, May, pp. 433-437. **3988**

The organisms of contagious pleuropneumonia of cattle, goats and sheep were passaged by s/c inoculation in mice, in which they produced a strong local reaction without systemic disturbance. The author is attempting to produce vaccines from mouse adapted strains.—A.S.

VAN DER HOEDEN, J. & SHAMIR, A. (1954). Besmettelijke agalactia bij geiten en schapen. **[Contagious agalactia in goats and sheep.]**—*Tijdschr. Diergeneesk.* **79,** 705-714. [English, French and German summaries.] **3989**

Contagious agalactia was diagnosed in Israel in goats imported from Roumania and Switzerland. Fatal infection was induced in goats and sheep by intradermal, subcutaneous, ocular and oral instillation of cultures of the organism. A doe infected its unweaned kid by contact. The experimental animals died from septicaemia.

—C. A. VAN DORSSEN.

FAHEY, J. E. & CRAWLEY, J. F. (1954.) **Studies on chronic respiratory disease of chickens. III. Egg transmission of a pleuropneumonia-like organism.**—*Canad. J. comp. Med.* **18,** 67-75. **3990**

Pleuropneumonia-like organisms were isolated from eggs and from chicks which were culled on account of unthriftiness. High level antibiotic treatment appears to be indicated to prevent this method of infection. It should not be construed from this that pleuropneumonia-like organisms are considered the sole agent of "chronic respiratory disease" of fowls or that egg transmission is the only method of spread.

—R. GWATKIN.

See also absts. **4131** (caseous lymphadenitis in pigs); **4178** (Ps. pyocyanea and artificial insemination); **4197** (demonstration of acid-fast and spirochaetal organisms in sections: **4204** (report, Australia); **4206** (report, Nigeria); **4207** (report, British Honduras); **4208** (report, Fiji); **4209** (report, Belgium); **4210** (book, B.C.G.); **4211** (book, otitis externa in dogs).

DISEASES CAUSED BY PROTOZOAN PARASITES

MULLIGAN, H. W. (1955). **Recent investigations on trypanosomiasis in British West Africa.**—*Trans. R. Soc. trop. Med. Hyg.* **49,** 199-223. Discussion: pp. 223-228. **3991**

M. outlined the development of the trypanosomiasis institutes at Vom and Kadura, in Nigeria, since they were set up in 1950 to meet the needs of the British West African territories. The work is divided among four departments dealing respectively with entomology, epidemiology, protozoology and veterinary trypanosomiasis.

He covered briefly the achievements in research on the ecology of *Glossina palpalis*; epidemiology; protozoology; pathology; and chemotherapy and chemoprophylaxis in human and veterinary medicine.

In discussion on the paper the speakers were Prof. T. H. Davey, Dr. A. J. Duggan, Dr. C. A. Hoare and Dr. C. C. Chesterman.—A.S.

MORNET, P. (1954). Les trypanosomes pathogènes de l'A. O. F. Considérations sur leur répartition, leur fréquence, le taux d'infestation des animaux domestiques. **[Incidence of trypanosomiasis of domestic animals in French West Africa.]**—*Bull. Soc. Pat. exot.* **47,** 709-720. **3992**

The order of importance of the organisms is:— *T. vivax* (48%); *T. congolense* (34); *T. brucei* (14) and *T. evansi* (3). *T. vivax* is the most widespread, but *T. congolense* predominates in French Guinea and *T. brucei* in the Ivory Coast. *T. vivax* and *T. congolense* predominate in cattle (85%) and horses (approx. 10%); *T. brucei* is found mainly in dogs (48%) and then equally in cattle and horses (21-23%), and *T. evansi* predominates in the camel (92%).

—MALCOLM WOODBINE.

ILUKEWITSCH, A. (1954). Zur Trypanosomiasis der Einhufer in Venezuela. **[*Trypanosoma venezuelense* infection in horses and donkeys in Venezuela.]**—*Schweiz. Z. allg. Path.* **17,** 613-642. [English and French summaries. Abst. from English summary.] **3993**

An account of the clinical signs, haematological and anatomical changes observed in "derrengadera". The morphological and biological characteristics of the causative organism (*T. venezuelense*) were studied. Experimental inoculation of horses and donkeys revealed that different strains of the trypanosome vary considerably in virulence. The diagnosis and differential diagnosis of the disease, and particularly the difficulty in distinguishing it from equine infectious anaemia also occurring in Venezuela, are discussed.

DESOWITZ, R. S. & FAIRBAIRN, H. (1955). **The influence of temperature on the length of the developmental cycle of *Trypanosoma vivax* in *Glossina palpalis*.**—*Ann. trop. Med. Parasit.* **49,** 161-163. [Authors' summary slightly modified.] **3994**

Ninety-two *G. palpalis*, which had emerged from pupae kept at 26°C., were fed once on a

sheep infected with *T. vivax* and were then kept in an incubator at a mean max. temp. of 29°C. The trypanosome cycle was completed in 5 days. Eighty-eight *G. palpalis*, which had also emerged from pupae kept at 26°C., were likewise fed once on a sheep infected with *T. vivax* and were then kept in an incubator at a mean max. temp. of 22°C. The trypanosome cycle was completed between the 12th and 13th days.

CANTRELL, W. (1955). **The effects of cortisone and oxophenarsine on *Trypanosoma equiperdum* infections in the rat.** — *J. infect. Dis.* **96,** 259-267. [Author's summary copied *verbatim.*] **3995**

Cortisone interfered with the action of oxophenarsine on *Trypanosoma equiperdum* in two ways, depending on the dose of oxophenarsine. At a low dose of oxophenarsine cortisone caused a delay in the disappearance of trypanosomes from the blood. At higher doses cortisone administration was associated with earlier relapse and a higher death rate than treatment with oxophenarsine alone. Cortisone had no effect on the course of *T. equiperdum* infections in the absence of oxophenarsine.

I. CURD, F. H. S. & RICHARDSON, D. N. (1955). **The synthesis of trypanocides. III. 4 - amino - 6 - (4 - amino - 1:6 - dimethylpyrimidinium - 2 - amino) - 1:2 - dimethylquinolinium salts and related compounds.**—*J. chem. Soc.* June. 1850-1853.

II. CURD, F. H. S. & RICHARDSON, D. N. (1955). **The synthesis of trypanocides. IV. The attempted preparation of 4-amino-6(6-amino-1:2 dimethylpyrimidinium-4-amino)-1:2-dimethylquinolinium di-iodide.** — *Ibid.* 1853-1858.

III. CARRINGTON, H. C., CURD, F. H. S. & RICHARDSON, D. N. (1955). **The synthesis of trypanocides. V. A rearrangement of some 6-amino-1-methylpyrimidinium salts, and the synthesis of 4-amino-1:2-dimethyl-6(1:2-dimethyl - 6 - methylaminopyrimidinium - 4 - amino)- quinolinium di-iodide.** — *Ibid.* 1858-1862. **3996**

I, II & III.—A description of the preparation of antrycide analogues, isomers and other derivatives.—E.G.

MAHONEY, M. C., CHRISTENSEN, J. F. & STEERE, J. (1954). **Trichomoniasis and its treatment in the dairy bull.**—*Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 73-76. **3997**

Tr. foetus infection in 4 bulls was treated by topical application to the prepuce and penis of "bovoflavin" ointment [*V.B.* 24, 2122] and by intravenous injection of sodium iodide. In two cases preputial samples over periods of 10 and 30 months were negative; matings to 3 virgin heifers during these periods did not transmit infection.—T.E.G.R.

SANBORN, W. R. (1955). **Microagglutination reactions of *Trichomonas suis, T.* sp., and *T. foetus*.**—*J. Parasit.* **41,** 295-298. **3998**

Agglutination tests using rabbit sera revealed definite antigenic differences between *Tr. suis* and a species of *Trichomonas* isolated from the caecum and nose of a pig affected with atrophic rhinitis. Tests with pig sera demonstrated the possibility of the presence of antibodies against nasal trichomonads in 4 out of 9 pigs with symptoms of atrophic rhinitis.—D. POYNTER.

HORTON-SMITH, C. & LONG, P. L. (1955). **The infection of chickens (*Gallus gallus*) with suspension of the blackhead organism *Histomonas meleagridis*.** [Correspondence.] — *Vet. Rec.* **67,** 478. **3999**

The authors failed to produce blackhead lesions in chickens having free access to food of conventional formula at the time of inj. *per os* with ground up caecal material derived from other chickens infected with embryonated ova of *Heterakis*. Evidence is presented which supports the hypothesis that the acidity of the gizzard of feeding chickens provides a barrier to the passage of the unprotected protozoan into the intestine. The resistant *Heterakis* ovum protects the protozoan in its passage through the gizzard and chickens can readily be infected by administering the embryonated ova of this nematode.

—D. POYNTER.

MOORE, E. N. (1954). **Species of coccidia affecting turkeys.**—*Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 300-303. Discussion: pp. 303-304. **4000**

The importance of coccidiosis as a disease of turkeys is increasing with the growth of the turkey industry and the increase in the av. size of flocks. M. discussed existing knowledge of the species of coccidium found in turkeys and the criteria used in identifying the species. He gave details of the principal species involved, the site of infection, morphological characters of the oocyst, sporulation time, prepatent period and pathogenicity. The species *Eimeria meleagrimitis* and *E. adenoeides*, are the principal pathogens.

He suggested that sulphaquinoxaline given

continuously at a conc. of 0·05% [presumably in the food] was effective in controlling experimentally induced infection with *E. meleagrimitis*.
—S. BRIAN KENDALL.

GILL, B. S. (1954). **Transmissibility of turkey coccidia (*Eimeria meleagridis, E. meleagrimitis* and *E. gallopavonis*) to chickens.**—*Indian vet. J.* **31**, 92-95. **4001**

A note recording the three species of coccidia in turkey faecal material in India. All three species were successfully transmitted to 3-week-old chickens. The slight abnormalities observed in the size of the oocysts were ascribed to their development in an unnatural host.
—R. N. MOHAN.

PINO, J. A. (1955). **Force molting (interruption of egg laying) in White Leghorn hens by the use of enheptin (2-amino, 5-nitrothiazole).**—*Poult. Sci.* **34**, 540-543. **4002**

Forty-seven hens were given aminonitrothiazole in the food at a conc. of 0.1% for the first 7 days and 0.05% for the following 7 days. Between the 7th and 10th days egg production ceased and there was marked shedding of feathers from all regions of the body. P. had previously shown [*V.B.* **25**, 1959) that the drug apparently inhibits the gonadotrophic hormone activity of the pituitary gland, but not the thyrotrophic activity. He suggested that cessation of egg production and moulting may result from this action of the drug.—R.M.

MATHEY, W. R. Jr. (1955). **Two cases of *Plasmodium relictum* infection in domestic pigeons in the Sacramento area.**—*Vet. Med.* **50**, 318. **4003**

M. suggests that the paucity of reports of malaria in pigeons in the U.S.A. may be due to the fact that sick birds are often killed without diagnosis. He found the parasite in two birds from lofts 4 miles apart.—D. POYNTER.

OKPALA, I. & MANWELL, R. D. (1955). **Chemotherapy of avian malarias: III. Trial of certain standard antimalarials on *Plasmodium hexamerium* and *P. elongatum* malaria in ducks.**—*J. Parasit.* **41**, 65-70. **4004**

Camoquin, chloroquine and primaquine singly and in combination were tested against *Pl. hexamerium* infection in ducks. Camoquin plus chloroquine was better than camoquin alone. None was as good as quinacrine or pentaquine. Primaquine was least effective against *Pl. elongatum* infection. Extraerythocytic stages of *Pl. hexamerium* were not found.
—JAS. G. O'SULLIVAN.

HERMAN, C. M. & PRICE, D. L. (1955). **The occurrence of *Hepatozoon* in the gray squirrel (*Sciurus carolinensis*).** — *J. Prot.* **2**, 48-51. **4005**

Hepatozoon sciuri was found in all of 97 gray squirrels from Washington D.C. and Maryland examined by a concentration technique.
—D. POYNTER.

SCHMIDTKE, L. (1954). Zur oralen Übertragbarkeit der Toxoplasmose. **[Experiments on the transmission of *Toxoplasma* infection by ingestion.]**—*Zbl. Bakt. I. (Orig).* **160**, 470-478. **4006**

Experimental results indicated that administration of *Toxoplasma* by the oral route is unlikely to induce infection in mice since the organisms were killed in saliva and in stomach contents in 1.5 to 3 hours.—E. J. L. SOULSBY.

See also absts. **4204** (report, Australia); **4205** (report, Northern Rhodesia); **4206** (report, Nigeria); **4209** (report, Belgium).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

CARMO, J. (1952). Desvio de deglutição no curso da febre aftósa (Nota prévia.) **[Aspiration of food in the course of foot and mouth disease. (Preliminary note.)]**—*Bol. Soc. bras. Med. vet.* **20**, 35-38. **4007**

C. found that in Brazil a common cause of death in cattle with F. & M. disease was pulmonary emphysema and aspiration pneumonia resulting from aspiration of food boluses during rumination, owing to interference of lingual and pharyngeal lesions with the normal process of swallowing.—R.M.

LANFRANCHI, A. (1954). Di alcuni dati di fatto, sull'importanza dei polisaccaridi batterici, nei confronti di un dato germe e suoi diversi tipi. Struttura chimica e relazione di essa con la specificità sierologica. Rilievi nei confronti tipi e varietà del virus febbre aftosa. **[Bacterial polysaccharides. Chemical structure and serological specificity. Comparative observations on types and variants of foot and mouth disease virus.]**—*Nuova Vet.* **30**, 249-255. **4008**

L. discussed bacterial polysaccharides, their role in immunology, their chemical structure and reactions, and the variations which take place when organisms grow on different media. He discussed the occurrence of the different types of F. & M. disease virus and the mutants of these

types in the light of our knowledge of the polysaccharide chemistry of bacteria.

—I. W. JENNINGS.

HIRTZ, J. (1955). **Electrophoretic properties of foot and mouth disease virus.** — *Arch. ges. Virusforsch.* **6**, 124-133. [In English.] **4009**

H. gave a short critical survey of electrophoretic studies on F. & M. disease virus since 1930, and described his own work demonstrating that types O, A and C have different properties in "boundary" and "zone" electrophoresis.

—A.S.

CUNHA, R. G., EICHHORN, E. A. & MATA, O. F. (1955). **Differentiation between foot-and-mouth disease and vesicular stomatitis viruses by means of mouse inoculation.**—*Amer. J. vet. Res.* **16**, 472-480. [Authors' summary modified.] **4010**

The authors described experiments with 2 strains of each of the 3 classical types of F. & M. disease virus and of the 2 types of vesicular stomatitis virus. The pathogenicity of these strains for adult and unweaned mice inoculated intracerebrally or intraperitoneally was investigated, as well as the use of infected mouse tissues as an antigen for the complement-fixation test. They concluded that adult and unweaned mice can replace large animals to a great extent in checking specimens which give negative reactions to the c.f. test, and described a mouse test suitable for the isolation and differentiation of the 2 viruses.

KOWALCZYK, T. & BRANDLY, C. A. (1954). **Susceptibility and serological response of various species of animals to infection with the virus of vesicular stomatitis.**—*Amer. J. vet. Res.* **15**, 477-480. **4011**

The authors inoculated vesicular stomatitis virus into a number of susceptible and non-susceptible animal species by various routes, and estimated the antibody content of the serum of these animals after the first and second inoculations by means of titration against a standard virus suspension in embryonated eggs. There was no correlation between antibody titres so measured and the susceptibility of the animals to infection under natural conditions.—A.S.

BANKOWSKI, R. A. & KUMMER, M. B. (1955). **Vesicular stomatitis and vesicular exanthema differentiation by complement fixation.** — *Amer. J. vet. Res.* **16**, 374-376. [Authors' summary slightly modified.] **4012**

A method of detecting and differentiating vesicular exanthema (VE) and vesicular stomatitis (VS) was described. The complement-fixation reaction was type-specific for two strains of VS virus propagated in chick embryos. No serious cross-fixation was evident with types A_{48}, C_{52}, and D_{53} of VE virus.

GORDON, W. A. M. & LUKE, D. (1955). **An outbreak of Aujeszky's disease in swine with heavy mortality in piglets, illness in sows and death *in utero*.**—*Vet. Rec.* **67**, 591-597. **4013**

Investigations into an outbreak in a breeding herd of 500 sows are described.

In addition to heavy mortality among piglets, 4 weeks old or less, ataxia, paresis, systemic upset, agalactia and abortion or production of mummified foetuses occurred in the sows, a high proportion of which came into oestrus shortly after clin. recovery. As the outbreak progressed nursing sows were increasingly affected and agalactia added to the piglet losses.

The disease was reproduced in young pigs by intracerebral, intraneural and intraperitoneal inoculation of brain from field cases and the virus of Aujeszky's disease was isolated and passaged in rabbits. The authors recognize that a number of other factors may have been operating at some time in the outbreak; hypovitaminosis A was present initially in some of the sows. *Str. uberis* was recovered from the vaginal discharges of others in the later stages of the epidemic and 2 strains of *E. rhusiopathiae* were isolated from affected piglets.

No therapeutic measures were effective, but artificial rearing seems to have reduced mortality in the litters of sows with agalactia.—J. T. DONE.

AZIZUDDIN, I. M. & GANAPATHY, M. S. (1954). **Glycosuria in rabies.**—*Indian vet. J.* **30**, 480-483. **4014**

Up to 2.5% sugar was present in urine collected before death from 4 cows and a calf which were suspected to be cases of rabies. The diagnosis was confirmed P.M. by microscopic examination of brain.—R. N. MOHAN.

(1954). **Laboratory techniques in rabies.** [Contributors: D'ANTONA, D., ATANASIU, P., BÉQUIGNON, R., FALCHETTI, E., HABEL, K., HOTTLE, G. A., JOHNSON, H. N., KAPLAN, M. M., KOMAROV, A., KOPROWSKI, H., LÉPINE, P., SELLERS, T. F., TIERKEL, E. S. & VIALAT, C.] — *World Hlth Org. Monogr. Ser.* No. 23. pp. 150. **4015**

In July 1952 the World Health Organization arranged at the Pasteur Institute of Coonoor, Southern India, a meeting at which were demonstrated laboratory techniques used in rabies control.

This meeting was especially intended for the

instruction of workers in the Eastern Mediterranean, South-East Asia and the Western Pacific regions.

This monograph describes the techniques which were demonstrated at the meeting. It is divided into five sections:– Laboratory diagnosis; Methods of vaccine production; Vaccine potency tests; Production of hyperimmune serum; and Laboratory animals.—A.S.

SOEKAWA, M., KASHIKURA, N., ISHIKAWA, T. & KANEKO, T. (1954). **On the filtrability of rabies virus.**—*Jap. J. vet. Sci.* **16**, 291-299. [In English. Japanese summary.] **4016**

In the normal filtration of a tissue suspension containing rabies virus difficulty is experienced because tissue fragments clog the pores of the filter and prevent the passage of virus. The authors avoided this difficulty, isolating the virus from tissue suspension by diffusion through semi-permeable membranes.—A.S.

COURTOIS, C. & WIKTOR, T. J. (1954). Persistance du virus rabique dans les vaccins antirabiques phéniqués. **[Viability of virus in phenolized rabies vaccines.]**—*Bull. Off. int. Epiz.* **41**, 1081-1087. **4017**

The authors examined a phenolized rabies vaccine for the presence of living virus. Mouse inoculation tests indicated the presence of living virus up to 3 months after the preparation of the vaccine.—A.S.

GORDATOS, S. (1955). **[Results of vaccination of dogs against rabies, in Athens.]**—*Delt. Hellen. kten. Hetair.* **2**, 775-780. [In Greek. Abst. from French summary.] **4018**

G. gave figures for the incidence of rabies in Athens before and after the vaccination campaign of 1953.—A.S.

PECK, F. B., Jr., POWELL, H. M. & CULBERTSON, C. G. (1955). **A new antirabies vaccine for human use. Clinical and laboratory results using rabies vaccine made from embryonated duck eggs.**—*J. Lab. clin. Med.* **45**, 679-683. **4019**

The authors described a rabies vaccine prepared from embryonated duck eggs. Tests in lab. animals showed that the vaccine possessed satisfactory potency and contained little if any of the encephalitogenic factor present in vaccines prepared from brain material. There were no untoward reactions in a trial of the vaccine on 20 human subjects.—A.S.

SCHANG, P. J. (1955). Dermatitis variolosa del cavia cobaya su transmision y profilaxis. **[Transmission and prophylaxis of variolar dermatitis of g. pigs.]**—*Gac. vet., B. Aires.* **16**, 23-31. **4020**

The authors describe a transmissible "variolar dermatitis" common in g. pig colonies in the Argentine. Although the disease resembles variola and local lesions are produced by scarification with virulent material, it is not transmissible to rabbits, sheep, cattle, pigs or horses. Man also appears insusceptible. The disease is transmitted by lice, and elimination of ectoparasistes controls it. In the absence of ectoparasites the disease induced by scarification remains local.

—H. E. HARBOUR.

DE BLIECK, L. (1955). Immunisation gegen Geflügelpocken. **[Fowl pox immunization.]** — *Berl. Münch. tierärztl. Wschr.* **68**, 65-68. [English summary.] **4021**

The author discussed the immunization of fowls, turkeys, pigeons and canaries against avian pox. Three distinct strains of virus are responsible for pox in fowls, pigeons and canaries, but the position of turkey pox virus is not fully understood. In temperate climates fowls are best immunized with a vaccine prepared from pigeon pox virus. Satisfactory immunity in pigeons is achieved by use of a homologous vaccine. Provisionally it is thought that turkeys are best immunized with pigeon pox virus.—A.S.

ADA, G. L. & PERRY, B. T. (1955). **Infectivity and nucleic acid content of influenza virus.** [Correspondence.]—*Nature, Lond.* **175**, 209-210. **4022**

Recent work suggests that the genetic properties of viruses are associated with their nucleic acid fractions. It is also known that infection of the host cell leads to the production of non-infective particles (the Von Magnus phenomenon). These differ from infective particles in containing little or no nucleic acid.

The authors investigated whether any correlation existed between "non-infectiveness" of particles, defined as the ratio of infectivity to haemagglutinin titre, and their nucleic acid content. They found that reduction of infectivity was accompanied by a decrease in nucleic acid content. Chromatographic studies of extracts of nucleic acid from virus at various levels of infectivity suggested that loss of infectivity was associated with the absence of specific fractions of the nucleic acid.—A.S.

STEWART, W. B., PETENYI, C. W. & ROSE, H. M. (1955). **The survival time of canine erythrocytes modified by influenza virus**—*Blood.* **10**, 228-234. [Interlingua summary.] **4023**

The authors withdrew a sample of radio-

actively labelled blood from a dog, suspended the washed r.b.c. with influenza virus until the maximum of virus adhered, and then studied the fate of these r.b.c. when injected i/v, in saline, into other compatible dogs. This was assessed by examining the radio-activity of blood samples withdrawn at intervals from the recipient dogs. There was a rapid fall of activity in the first half hour, followed by a rise which reached its max. in 2-3 hours. The donated cells were all destroyed within 3-4 days. This represents a considerable shortening of survival time. The authors consider that panagglutinins to the virus-modified r.b.c. may be responsible.—A.S.

I. VAN TONGEREN, H. A. E., WILTERDRINK, J. B., WYLER, R. & RICHLING, E. (1955). **Encephalitis in Austria. III. A serological survey followed up by an epidemiological study in the endemic region of Styria during the outbreak of 1954**—*Arch. ges. Virusforsch.* **6,** 143-157. [In English.] **4024**

II. VAN TONGEREN, H. A. E. (1955). **Encephalitis in Austria. IV. Excretion of virus by milk of the experimentally infected goat.**—*Ibid.* 158-162. [In English.] **4025**

I.—The authors carried out serological tests for Russian spring-summer encephalitis (Graz strain) on a number of patients from a region of Styria, who had been admitted to hospital with clin. symptoms of encephalomyelitis, or with non-specific clin. symptoms. There was a high incidence of the infection. Many family outbreaks were associated with the consumption of unboiled goat's milk and there is evidence that ticks (*Ixodes ricinus*) may act as vectors. Neutralizing antibodies were detected in the sera of cattle, goats, deer, pheasants, partridges and fowls.

II.—In an epidemiological survey (see above), antibodies to Russian spring-summer encephalitis (Graz strain) were demonstrated in the serum of goats belonging to families which had contracted the disease. The milk was however not examined. To establish beyond doubt that goats' milk could be infective the author infected a goat by s/c inoculation of virus: the animal showed no sign of illness except a transient rise of temp., but virus was present in the milk from the 3rd-8th day after infection, and in the blood for the first 5 days.—A.S.

LIAO, S. J. (1955). **Eastern equine encephalitis in Connecticut: a serological survey of pheasant farmers.** — *Yale J. Biol. Med.* **27,** 287-296. **4026**

L. did not find an appreciable level of antibody in the serum of workers on pheasant farms in Connecticut, many of whom had been in contact with diseased birds during an outbreak of eastern equine encephalomyelitis about a year before. Serum from 8 patients who, in 1938, had developed encephalitis at the time of an epidemic among horses, gave similar negative results. He discussed these findings.—A.S.

HEINIG, A. (1955). Die pH-Resistenz des Virus der Borna'schen Krankheit der Pferde. **[Resistance of the virus of Borna disease of horses to acids and alkalis.]**—*Zbl. Bakt. 1. (Ref.)* **156,** 170. [Only abst. given. Abst. from abst.] **4027**

In the course of work to find a suitable disinfectant for use against Borna disease virus it was found that the virus was resistant for 30 min. to phosphate buffer solutions of pH values from 5 to 12. It would seem from this that caustic soda would be unsuitable.

V. SPROCKHOFF, H. & NITZSCHKE, E. (1955). Untersuchungen über das komplementbindende Antigen in Gehirnen bornavirus-infizierter Kaninchen. I. Nachweis eines löslichen Antigens. **[Complement-fixing antigen in the brain of rabbits infected with Borna disease. I. Demonstration of a soluble antigen.]**—*Zbl. VetMed.* **2,** 185-192. [English, French and Spanish summaries. **4028**

A suspension of rabbit brain infected with Borna disease virus was centrifuged at 3,000, 9,000, 22,000 and 40,000 r.p.m., the supernatant from the lower rate being centrifuged at the next higher rate after part had been removed for examination of infectivity. The supernatants after centrifuging at 22,000 and 40,000 r.p.m. contained a complement-fixing antigen which might serve as a soluble antigen.—A.S.

BURGISSER, H. (1955). Contribution au diagnostic de l'anémie infectieuse des solipèdes. 2 ème note. **[Diagnosis of equine infectious anaemia. II.]**—*Schweiz. Arch. Tierheilk.* **97,** 365-368. [In French, English, German and Italian summaries.] **4029**

Siderocytes were present in the blood of 96 out of 142 horses with equine infectious anaemia. They were never present in uninfected horses. The presence of siderocytes may therefore be a useful aid to the diagnosis of the disease.—A.S.

AMBROSINO, C., LIBERATORI, J. & GUARINI, G. (1955). Ricerche chimico-fisiche sull'antigene dell'anemia infettiva degli equini. **[Electrophoresis of serum from horses with equine infectious anaemia.]** — *G. Batt. Immun.* **47,** 303-318. [English, French and German summaries.] **4030**

An active and specific equine infectious

anaemia antigen was present in fraction II obtained by electrophoresis of spleen suspensions or of fresh or freeze-dried serum from infected horses. The electrophoretic mobility of this substance lay between those of the β- and γ-globulins of the serum. The antigen was employed in a modified complement-fixation test with promising results.—R.M.

SCOTT, G. R. & MACLEOD, W. G. (1955). **The optimum concentration of lapinised rinderpest virus for the inoculation of rabbits in the production of vaccine.**—*J. comp. Path.* **65**, 236-238. **4031**

In the production of lapinized rinderpest vaccine the authors had formerly inoculated rabits with 50,000 ID_{50} doses of virus, a procedure which required a fairly cumbersome stock of virus. They have now found that doses as low as 1,000 ID_{50} produce satisfactory results. —A.S.

CICOGNANI, A. (1955). Quadro sintetico di osservazioni cliniche e terapeutiche su sindromi sostenute presumibilmente da ultravirus del tipo broncopolmonite infettiva-influenza del bovino. **[Symptoms and treatment of a respiratory disease in cattle presumably caused by a virus.]**—*Zooprofilassi.* **10**, 227-232. **4032**

C. gave an account of a disease of unknown aetiology affecting 57 adult cattle in Grosseto, Italy. There were two main clinical forms of the condition; thoracic and gastro-intestinal. The former occurred sporadically and was characterized by broncho-pneumonia with a temp. fluctuating between 40° and 41.5°C. The gastro-intestinal form was sudden in onset and characterized by severe colic preceded by a short period of anorexia and followed by tympanites and difficulty in micturition. There was no rise in temp. Variations of these two forms were also encountered. Vitamin B_1, alone or associated with antibiotics and/or sulphonamides was administered to 54 animals of which 51 recovered and 2 died or were slaughtered [no information is given about the other animal]. Three animals to which vitamin B_1 had not been administered died or were slaughtered. There were no pathognomonic lesions at P.M. examination.—T.E.G.R.

JEGANATHAN, P. (1954). **Some observations on the control of bovine granular vulvo vaginitis.**—*Ceylon vet. J.* **2**, 41-42. **4033**

J. discussed some therapeutic agents used in bovine granular vulvo-vaginitis.—T.E.G.R.

PRICE, D. A. (1955). **The problem of bluetongue control in range sheep.**—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 256-259. **4034**

A univalent avianized vaccine has recently been developed, but P. suspects that the need for a polyvalent vaccine will become apparent. Lambs suckled by naturally immune ewes receive effective colostral antibodies, but cannot be satisfactorily vaccinated during this time. "Range stiffness" is a mild form of bluetongue contracted when this passive immunity is on the wane. The vectors are *Culicoides* spp. and possibly mosquitoes, and insecticidal or repellent sprays have shown promise as bluetongue control measures. —C. C. BANNATYNE.

POTEL, K. & KORN, G. (1954). Zur Histologie des Digestionsapparates bei Schweinepest. **Histology of the digestive tract in swine fever.]**—*Arch. exp. VetMed.* **8**, 626-642. **4035**

The authors reported their findings after a histological study of the digestive tracts of 109 pigs naturally or artificially infected with swine fever.—A.S.

TRUMIĆ, P., ERCEGOVAC, D. & TURUBATOVIĆ, R. (1955). **[Swine fever immunization using crystal violet vaccine and immune serum simultaneously.]**—*Acta. vet., Belgrade.* **5**, No. 2, pp. 27-35. [In Serbian. Abst. from German summary.] **4036**

Hyperimmune serum given simultaneously with crystal violet vaccine has a deleterious effect on the antigenicity of the latter. However, a single inoculation of 5 ml. vaccine with 1 ml. serum conferred good protection for 4 months on pigs weighing 40 kg. This method was suitable for threatened areas. In heavily affected areas the authors recommended a second vaccination after 3 months with crystal violet vaccine alone. —A.S.

KALIKIN, B. & DJETVAJ, M. (1955). **[Swine fever immunization. III. Protection of piglets by vaccination of the dam.]**—*Vet. Glasn.* **9**, 6-12 & 73-85. [In Serbian. Abst. from French summary.] **4037**

In a piggery which had for many years suffered losses from swine fever, piglets were protected for the first 4 months of life by actively immunizing the sows just before or just after insemination. The piglets were themselves vaccinated at 4 months.—A.S.

SOEKAWA, M., UEDA, S., MATSUMOTO, K., MIYATE, T., IMANISHI, N. & KASHIKURA, N. (1954). **Studies on the inactivation of hog cholera virus. I. Preliminary experiment on inactivation by ultra-violet irradiation, nitrogen mustard, and crystal violet.**—*Jap. J. vet.*

Sci. **16,** 227-250. [In English. Japanese summary.] **4038**

Swine fever virus was not inactivated by ultra-violet irradiation at dosages which killed 99.9% of *Bacterium aerogenes* organisms suspended in saline. The virus was rapidly inactivated by nitrogen mustard. The authors discussed the roles played by temperature, glycerol and crystal violet in the preparation of crystal violet vaccine.—A.S.

SCHOOP, G. (1955). Die Gastroeneteritis infectiosa suum. **[Infectious gastro-enteritis in pigs.]**—*Tierärztl. Umsch.* **10,** 124-126. **4039**

S. described an infectious gastro-enteritis encountered in Germany in winter 1954-55. It seemed to be identical with an infection seen in the Rhein/Main district in the previous winter and described by Hupka. Differential diagnosis between this infection and the early stages of swine fever is difficult.—A.S.

HJÄRRE, A., DINTER, Z. & BAKOS, K. (1954). Über Züchtungsversuche mit dem Schweineinfluenzavirus (Shope) und dem Virus der enzootischen Schweinepneumonie in vitro. **[Tissue culture of the viruses of swine influenza and of porcine virus pneumonia.]**—*Nord.VetMed.* **6,** 919-935. [In German. English and Swedish summaries.] **4040**

The authors cultivated the virus of enzootic pneumonia of pigs in roller-tube cultures of porcine kidney, lung epithelial and fibroblast tissues. The virus had no pathogenic effect on the tissues until the fifth passage. This method of culture was successful with virus from only 3 out of 13 cases. This contradicts the finding of Wesslén & Lannek [*V.B.* **25,** 107] that the isolation of the virus is readily accomplished.

—A.S.

HELMBOLDT, C. F. & JUNGHERR, E. L. (1955). **Distemper complex in wild carnivores simulating rabies.**—*Amer. J. vet. Res.* **16,** 463-469. **4041**

A total of 35 grey foxes (*Urocyon cinereoargenteus*), red foxes (*Vulpes fulva*), racoons (*Procyon lotor*) and skunks (*Mephitis mephitis*), which had exhibited aggressive or unusual behaviour, were examined for rabies. None had the disease. Twenty, however, had canine distemper, revealed by ferret inoculation or histological evidence. In the remaining 15 there was no histological evidence, and ferret inoculations were not performed. In view of the similarity of the clinical picture, however, the authors considered that these too were probably affected with canine distemper. They reported bacteriological and parasitological findings.—A.S.

POTEL, K. (1955). Enzephalitis bei klassischer Hundestaupe und bei hard pad disease unter besonderer Berücksichtigung der entmarkenden Enzephalitis. **[Encephalitis in classical distemper and in "hard pad" disease, with special reference to demyelinating encephalitis.]**—*Dtsch. Tierärztl. Wschr.* **62,** 9-10. **4042**

P. compared histological findings in distemper—particularly the nervous form—and hard pad disease. He found considerable similarity.

In an experiment with dogs inoculated with hard pad virus no signs of hard pad disease were seen up to the 55th day. Biological tests demonstrated the presence of distemper virus. P. concluded that although he had not demonstrated that distemper virus caused hard pad disease, he had shown that the two conditions could occur simultaneously. More work was necessary to establish the cause of hard pad disease.—A.S.

NIJLAND, G. L. (1954). Over de toepassing van enkele preparaten van hondenziektevirus als therapeuticum bij hard pad disease. **[Use of some preparations of dog distemper virus as therapeutics in "hard pad" disease.]**—*Tijdschr. Diergeneesk.* **79,** 572-575. [English, French and German summaries.] **4043**

Two dog distemper virus vaccines were tested therapeutically in 48 cases of febrile disease that were clinically grouped together as "hard pad" disease. Of these dogs 24 had previously been immunized with distemper virus. During the first 10 - 15 hours after the injection there is a rise of temperature followed by a critical fall. All those that had previously been immunized and 16 of those not previously immunized recovered after this treatment.

—C. A. VAN DORSSEN.

SCHWOCHOW, K. (1955). Ein weiterer Beitrag zur Staupebehandlung der Hunde mit Lachesis (Atarost). **[Treatment of dog distemper with lachesis.]**—*Mh. Vet. Med.* **10,** 37-38. **4044**

In 1952 Teller [*V.B.* **23,** 1256] reported his results after treating 64 cases of dog distemper with lachesis (a snake venom). This work was carried out in a country practice.

S., working in Berlin, also treated 64 distemper cases with the drug. He reported 12 deaths as against Teller's 3, but considered that the distemper virus in Berlin, where the canine population is very dense, was probably more virulent. He considered lachesis equal to or better than non-specific protein products for the treatment of distemper.—A.S.

PRIER, J. E. & KALTER, S. S. (1955). **Serological methods for determining resistance to**

infectious canine hepatitis.—*Amer. J. vet. Res.* **16**, 429-432. [Authors' summary modified.] **4045**

The authors discussed the serological identification of canine virus hepatitis antibodies, and described the standard procedures for the complement fixation and the conglutinating complement absorption tests. The reactions of sera from 95 dogs selected at random were studied. Out of 56 sera reacting to both tests, 64% gave a higher conglutinating complement-fixation titre; the remainder gave equal titres to each test.

FENNER, F. & MARSHALL, I. D. (1954). **Passive immunity in myxomatosis of the European rabbit (*Oryctolagus cuniculus*): the protection conferred on kittens born by immune does.**—*J. Hyg., Camb.* **52**, 321-336. **4046**

Passive immunity to myxomatosis was demonstrated in young rabbits inoculated with immune serum. A small number immunized in this way survived longer than controls. A similar level of passive immunity was seen when the offspring of immune does were challenged by the bites of mosquitoes infected with a standard strain of myxoma virus. When the young of immune does were challenged by intradermal inoculation with a slightly attenuated strain of myxoma virus 25% survived, while all controls died. Other things being equal, the survival time of young rabbits at a few days of age was always shorter than that at several weeks.

The authors discussed the consequences of passive immunity in the epidemiology of the disease. Both the disease and the breeding of the rabbit may or may not be seasonal, according to local circumstances. Maximum effects are to be expected where many passively immune young are present when an epidemic reaches its height. —A.S.

EVANS, A. S. (1955). **The interaction of serum with erythrocytes modified by Newcastle disease virus.**—*J. Immunol.* **74**, 391-396. [Author's summary copied *verbatim*.] **4047**

The cell-sensitizing substance of Newcastle disease virus (NDV) differs from the virus hemagglutinin. Two different sorts of red cell sensitization may occur, one of which results in agglutination by immune serum, the other in agglutination by infectious mononucleosis serum. The sensitizing component for infectious mononucleosis serum varies with the NDV strain and persists through passage at limiting dilutions. It may be a useful genetic marker.

GARAY, K. & SZENT-IVÁNYI, M. (1955). Ultraszonikus sugárzás hatása a baromfipestis (Newcastle)-virusra. **[Effect of ultrasonic waves on Newcastle disease virus.]**—*Mag. állator. Lapja.* **10**, 235-238. [English and Russian summaries.] **4048**

Ultrasonic irradiation lessened or destroyed the virulence of Newcastle disease virus while increasing its haemagglutinating power. The irradiated virus regained its original virulence after a single chick-embryo passage.—A.S.

JACOTOT, J., VALLÉE, A. & LE PRIOL, A. (1955). Récidive, après quatre ans et demi, d'une conjonctivite humaine à virus de Newcastle. **[Conjunctivitis caused by Newcastle disease virus in a man who had been infected four and a half years previously.]**—*Ann. Inst. Pasteur.* **88**, 111-113. **4049**

A note on a laboratory worker who contracted Newcastle disease after splashing a drop of virus suspension into his eye. He developed conjunctivitis, a "heavy feeling" in the head, and pains in the throat. On the eighth day he recovered entirely. No specific antibodies were found in blood samples taken at intervals after the infection, though they had been present when he contracted the same disease in similar circumstances 4½ years earlier.—A.S.

DANE, D. S. & BEECH, M. (1955). **Psittacosis among birds in contact with man.**—*Med. J. Aust.* March 19th, 428-429. **4050**

Because of the high incidence of demonstrable complement-fixing antibodies to the psittacosis-lymphogranuloma group of viruses in normal human beings an examination of various bird species was carried out. Serological tests were positive in a high proportion of domestic fowls and tame pigeons, but not in wild pigeons or wild Indian doves. Virus isolations were also made in a high proportion of tame pigeons and house sparrows from one area. Attempts to isolate the virus from house sparrows from another area, and from Indian doves and crested pigeons were unsuccessful.—D. C. BLOOD.

MEYER, K. F. & EDDIE, B. (1955). **Chemotherapy of natural psittacosis and ornithosis. Field trial of tetracycline, chlortetracyline and oxytetracycline.**—*Antibiot. & Chemother.* **5**, 289-299. [Spanish summary pp. 313-314.] **4051**

The authors eliminated psittacosis from a breeding flock of 110 parakeets by giving two i/m injections of chlortetracyline (aureomycin) per day for 14 days. The flock was isolated after treatment, and at the time of writing two generations of psittacosis-free birds had been raised. Similar treatment of a breeding flock of pigeons

showed promise but re-infection occurred as a result, it was thought, of failure to isolate the treated birds properly. The results with parakeets suggested that the quarantine authorities might be able to develop a scheme for treating all psittacine birds in their care. They could then be safely released from quarantine a fortnight or so after treatment.—A.S.

BRAND, G. & LIPPELT, H. (1955). Untersuchungen über den unspezifischen Wassermann-Antikörper bei Ornithose. **[The non-specific Wassermann antibody in ornithosis.]**—*Arch. ges. Virusforsch.* **6,** 65-75. **4052**

Of 144 human cases of ornithosis 40 gave positive reactions to the Wassermann test. The authors thought at first that certain strains of the virus had the property of stimulating the production of non-specific Wassermann antibodies. An epidemiological study did not, however, support this view. It would appear that some patients react in this way and others not, irrespective of the virus strain concerned.—A.S.

HELMBOLDT, C. F., LUGINBUHL, R. E., HAMMAR, A. H., SATRIANO, S. F. & JUNGHERR, E. L. (1955). **The effects of some avian neurotropic viruses on young dairy calves.**—*Amer. J. vet. Res.* **16,** 57-63. **4053**

Dairy calves inoculated intrathecally or intracerebrally with the virus of avian encephalomyelitis remained healthy, but others similarly inoculated with Eastern equine encephalomyelitis developed akinetic symptoms. Following intracerebral inoculation only, of Newcastle disease virus, calves developed a non-purulent diffuse encephalitis associated with hyperkinesia, but the virus could not be recovered. It was concluded that avian neurotropic viruses are of little importance to cattle.—A. ACKROYD.

GIROUD, P., GIBERT, P. & ROGER, F. (1955). La recherche de la fièvre Q dans le département de l'Aveyron nous amène à authentifier des affections du groupe de la psittacose chez les ovins et les bovins. **[Occurrence of antibodies to *Rickettsia burneti* and psittacosis in sera from cattle and sheep in the Department of Aveyron, France.]**—*Bull. Acad. vét. Fr.* **28,** 81-85. **4054**

In the course of Q fever investigations the authors examined flocks of sheep which, by reason of a history of abortion or other illness, or because of illness in the workers in contact with them, were suspected of harbouring the disease. Some sheep were positive to the c.f. test for *Rickettsia burneti*. Others were positive to the c.f. test for psittacosis virus, but not for *R. burneti*. Similar results were obtained in cattle. —A.S.

HARDING, H. B., SCHMIDT, N. J. & HELPER, O. E. (1954). **Some pitfalls in the performance and the interpretation of results of serologic tests for virus and rickettsial diseases.**—*Arch. Path.* **57,** 447-463. [Authors' summary slightly modified.] **4055**

The authors described the following laboratory tests which are employed in the lab. diagnosis of viral and rickettsial diseases:— the neutralization test, the heterophile antibody test, the haemagglutination-inhibition test, the cold haemagglutination test, the *Streptococcus* "MG" agglutination test, the complement-fixation test, and the complement-fixation inhibition test. Each test was discussed from the following standpoints: (a) the principles involved in the method; (b) problems encountered in the performance of the test; (c) problems involved in the interpretation of the results obtained; (d) the applicability of the test to routine lab. diagnosis of disease.

See also absts. **4093** (oncolytic properties of viruses); **4094** (leucosis—a virus disease?); **4204** (report, Australia); **4205** (report, Northern Rhodesia); **4206** (report, Nigeria); **4207** (report, British Honduras); **4208** (report, Belgium).

IMMUNITY

TALMAGE, D. W., BAKER, H. R. & AKESON, W. (1954). **The separation and analysis of labelled antibodies.**—*J. infect. Dis.* **94,** 199-212. **4056**

Labelled anti-human γ-globulin is prepared by specific absorption or precipitation of the labelled antibody followed by elution at a neutral or an acid pH with carrier exchange, or elution with acid alone. With soluble antigens, *e.g.* human γ-globulin, labelled antibody is most easily separated by treatment with the soluble antigen and elution at pH 3.2 with excess carrier. —W. R. BETT.

MELLORS, R. C., SIEGEL, M. & PRESSMAN, D. (1955). **Analytic pathology. I. Histochemical demonstration of antibody localization in tissues, with special reference to the antigenic components of kidney and lung.**—*Lab. Invest.* **4,** 69-82. **4057**

The authors described a method for the histological demonstration of antigenic components in tissues. Rabbit antibodies against rat kidney and lung became localized in the renal glomeruli when injected into rats, whereas antibodies against ovalbumin did not display a selective localization in the kidney. Localization

of rabbit antibodies was demonstrated in rat lung tissue, particularly in the alveolar septa and basement membranes. There was also localization of antibodies in the renal glomeruli of rabbits during acute glomerulonephritis induced by injection of a purified foreign protein.—E.G.

COHEN, C. (1955). **Blood group factors in the rabbit.**—*J. Immunol.* **74,** 432-438. [Author's summary copied *verbatim.*] **4058**

Six blood-group factors in the rabbit have been identified by using isoimmune sera. An animal may have from none to all six of the factors. The role of these factors in isoimmunization and their relationship to previously reported blood-group factors are discussed.

WILLIAMS, C. A., Jr. & GRABAR, P. (1955). **Immunoelectrophoretic studies on serum proteins. II. Immune sera: antibody distribution.**—*J. Immunol.* **74,** 397-403. [Authors' summary copied *verbatim.*] **4059**

Immunoelectrophoretic methods can be used to determine the mobility of specific precipitating antibodies and to relate these to normal components of the immune serum. Antibodies of immune horse serum show a wide range of mobilities from that of γ-globulin to that of the rapidly-migrating β-globulin. The mobilities of horse serum proteins with immune function do not all correspond to those of horse serum components revealed by rabbit antisera against normal and immune horse serum. Antibodies of the ass and rabbit have the mobility of γ-globulin, although two close but distinctly different mobilities are revealed in the case of the rabbit antisera. The value of immunoelectrophoretic analysis to the control of separation and purification of antibody rich serum fractions is pointed out.

See also absts. **3906** (anthrax); **3911** (tuberculin allergy); **3913** (TB.); **3926** (swine erysipelas); **3928** (serological type of Past. septica); **3934** (Bact. coli); **3937** (equine paratyphoid); **3945** (brucellosis); **3952** (diagnosis of brucellosis); **3953** (vaccinaton against brucellosis); **3956** (production of Brucella sera); **3959** & **3962** (leptospirosis in cattle); **3966** (polysaccharide antigens of Leptospira); **3969** (black quarter); **3981** (coccidioidomycosis); **3998** (Trichomonas suis); **4012** (serological differentiation of vesicular stomatitis and vesicular exanthema); **4017-4019** (rabies); **4021** (fowl pox); **4028** (Borna disease); **4030** (E.I.A.); **4031** (rinderpest); **4034** (bluetongue); **4036-4038** (swine fever); **4046** (myxomatosis); **4047-4048** (Newcastle disease); **4052** (psittacosis); **4054** (Q fever and psittacosis antibodies in cattle and sheep sera); **4055** (serological tests in virus and rickettsia diseases); **4124** (a modified complement-fixation test); **4210**, (book, B.C.G.).

PARASITES IN RELATION TO DISEASE [GENERAL]

ANON. (1955). **Report of committee on parasitic diseases.**—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 303-308. **4060**

A brief summary of the financial loss to the livestock industry of the U.S.A., due to ecto- and endoparasites, based on figures for 1942-51. It was estimated that 940 million dollars are lost annually as a result of parasitic infestation, and this represents about one third of the total estimated loss to the industry from all forms of disease. Arthropod parasites alone are estimated to cause a loss of 500 million dollars.

—W. E. PARISH.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

ROTH, A. R., MOTE, D. C. & LINDQUIST, D. A. (1954). **Tests of repellents against tabanids.**—*Tech. Pap. Ore. agric. Exp. Sta.* No. 823, pp. 10. **4061**

Of 258 synthetic organic compounds tested in the lab. as repellents of the deer fly (*Chrysops discalis*) using white mice as host animals, few compounds showed promise as long lasting repellents. 2-Amino-3-isobornyloxy-2-methyl-1-propanol and "Santomerse DT" (a salt of an alkyl substituted aromatic sulphonic acid) were the most effective. These compounds were promising in field trials using calves and mixed populations of tabanids. All materials tested except the pyrethrins were slightly deleterious to hair and skin. Protection ranged from 2 hours to 3½ days. Pyrethrum sprays were only effective at very high concentrations.—D. POYNTER.

DICKE, R. J., LUGTHART, G. J. & JONES, R. H. (1955). **Control of maggots in turkey dung with malathion.**—*J. econ. Ent.* **48,** 342-343. **4062**

Malathion (2% water emulsion at the rate of 2 gal./50 sq. ft.) killed the larvae of *Musca domestica* in turkey dung. There were no toxic symptoms in the turkeys exposed to the insecticide.—JAS. G. O'SULLIVAN.

GEBAUER, O. (1955). Theorie und Praxis der Bekämpfung der Dasselplage, Rückblick und Ausblick. (Zweite Mitteilung). [**Theory and practice of the control of *Hypoderma* infestation of cattle.**] —*Wien. tierärztl. Mschr.* **42,** 292-304. [English, French and Italian summaries.] **4063**

G. commented on the failure of legislation

in Austria to bring about a reduction in the losses caused by warble flies. He attributed this to lack of interest among the farmers, who were ignorant of the importance of the damage caused. He described methods of control.—A.S.

HANSENS, E. J., GRANETT, P. & O'CONNOR, C. T. (1955). **Fly control in dairy barns in 1954.**—*J. econ. Ent.* **48**, 306-310. **4064**

Sprays and baits were tested and the most effective spray was American Cyanamid 4124 ("isochlorthion") which gave 6 to 8 weeks' control. Of the bait treatments, "diazinon" as a wet bait gave control for a month. Residual sprays gave better results than did baits and the baits were ineffective against *Fannia* and *Stomoxys*.—JAS. G. O'SULLIVAN.

DAHM, P. A. & RAUN, E. S. (1955). **Fly control on farms with several organic thiophosphate insecticides.** — *J. econ. Ent.* **48**, 317-322. **4065**

Emulsifiable concentrate and wettable powder preparations of some organic thiophosphate insecticides were tested. American Cyanamid 4124 ("isochlorthion"), chlorthion, "diazinon", "penthion-80" and "pirazinon" were effective against *Musca*. Diazinon was best against *Stomoxys*. There was no trace in milk samples of the isochlorthion or chlorthion used on two farms.—JAS. G. O'SULLIVAN.

I. HOCKING, K. S., YEO, D. & ANSTEY, D. G. (1954). **Aircraft applications of insecticides in East Africa. VI.—Applications of a coarse aerosol containing DDT to control the tsetse flies, *Glossina morsitans* Westw., *Glossina swynnertoni* Aust. and *Glossina pallidipes* Aust.**—*Bull. ent. Res.* **45**, 585-603. [Abst. from authors' summary. For previous parts, see *V.B.* **24**, 799, 800, 2394, 4083 & 4084.] **4066**

II. HOCKING, K. S., BURNETT, G. F. & SELL, R. C. (1954). **Aircraft applications of insecticides in East Africa. VII.—An experiment against the tsetse flies, *Glossina morsitans*, Westw. and *G. swynnertoni* Aust., in the rainy season.**—*Ibid.* 605-612. [Authors' summary modified.] **4067**

III. HOCKING, K. S., BURNETT, G. F. & SELL, R. C. (1954). **Aircraft applications of insecticides in East Africa. VIII.—An experiment against the tsetse fly, *Glossina swynnertoni* Aust., in an isolated area of thornbush and thicket.**—*Ibid.* 613-622. [Authors' summary slightly modified.] **4068**

I. An account of an experiment in which applications of a coarse aerosol were made to savannah woodland harbouring *G. morsitans*, *G. swynnertoni* and *G. pallidipes*. Seven applications were made, each at a normal dosage of 0.25 lb. of technical D.D.T. per acre and 0.25 gal. of solution per acre. The applications in any particular part of the treated woodland covered an interval of 90 days, or rather more than two pupal periods.

The coarse aerosol was produced by emitting the insecticidal soln. under pressure through fine nozzles fitted to a boom. The aerosol had a mass median diam. of approx. 60 μ, the droplet diam. varying from less than 10 μ to approx. 200 μ.

The population of *G. pallidipes* was so drastically reduced that it subsequently died out. The reduction of *G. morsitans* was approx. 98% and of *G. swynnertoni* approx. 95%. The differences between the reductions were attributed mainly to differences between the ease with which the 3 species can be killed. The authors pointed out that this is not necessarily equiv. to differences in susceptibility. They compared these findings with those of previous experiments; the different results of the various experiments were difficult to explain satisfactorily. The increased cover in savannah areas during the leafy period may have reduced the effectiveness of the applications, and the total periods covered by the various series of applications were probably also important. Random effects, leading to ineffective treatments, might also be important. They discussed costs.

II. The "North Block" at Kikore, Central Province, Tanganyika, was treated with insecticide dispersed from an Anson I aircraft during the period 23rd January to 4th May 1951. The area consisted of some 4,000 acres of mixed bush, including about 230 acres of "miombo" woodland (*Isoberlinia globiflora, Brachystegia microphylla*, etc.) infested by *G. morsitans* and *G. swynnertoni*.

The insecticide used was equiv. to 19.4% soln. of technical benzene hexachloride (equal to 2.45% γ-isomer) in 50% diesel oil and 50% power kerosene. The soln. was dispersed through a boom and nozzles under pressure as a coarse aerosol at a nominal mean dosage of 0.25 lb. technical B.H.C. per acre per application. Of 7 applications completed the first was relatively ineffective, and for the second and subsequent applications the emission rate was increased and over part of the block the swathe width was reduced. The result was a much improved kill, but neither species was exterminated.

Owing to the number of factors involved, it was not possible to give any principal reason why this experiment was less successful than previous

ones, but many of the difficulties encountered are inherent in rainy-season operations in East Africa.

III. An isolated area of 2,000 acres of thicket and thornbush in the Central Province, Tanganyika, was treated from the air with D.D.T.-in-oil aerosol in an attempt to eliminate *G. swynnertoni*. Eight applications of 0.25 lb. technical D.D.T. per acre were planned to be made at fortnightly intervals. Delays due to unseasonal bad weather reduced this to 7 at a slightly higher rate and over a longer period.

G. swynnertoni was reduced from an apparent density of about 7 to zero at the end of the second application. No flies were caught after the 5th application for a period of 6 months. It was not possible to say whether the few caught since then had been brought in or were the offspring of survivors of the insecticidal treatment.

This treatment was more successful than that on the Galapo Block in the same area, to a highly significant degree, and this was attributed to the vulnerability of the smaller population present. It was doubtfully better than the first treatment of the North Block, also in this area, because the increase in population in the latter block may have been assisted by immigration.

GILLETT, J. D. (1955). **Further studies on the biting behaviour of *Aëdes* (*Stegomyia*) *simpsoni* Theobald in Uganda.**—*Ann. trop. Med. Parasit.* **49**, 154-157. **4069**

G. reported further studies on the feeding habits of *Aedes simpsoni* mosquitoes in Uganda, and confirmed the existence of anthropophilic and non-anthropophilic races. He discussed the effect of this phenomenon on the epidemiology of yellow fever in the region.—A.S.

HEATH, G. B. S. (1955). **Sheep dips. Changes which may occur in a bath during the dipping of sheep and observations on the probable time for which dips may be retained in the fleece.**—*Vet. Rec.* **67**, 529-532. **4070**

When active principles of a dip are water soluble it is unlikely that the bath concentration will fall markedly during dipping, but materials which are in the form of emulsions may be selectively removed. No reason for this has been found, but suggestions are advanced. Changes in pH during dipping are unimportant and need only be considered if an acid medium is required for satisfactory emulsification. The surface tension of dips remained fairly constant at 30 - 40 dynes/cm. Arsenic was well retained by the fleece and even persisted after washing in cold water. H. advances the view that a film of wool grease is formed over the active principle, thereby protecting it.—D. POYNTER.

ANON. (1954). **Insecticides for the use in livestock-dipping vats.**—*U.S. Agric. Res. Serv., Ent. Res. Branch.* Publ. No. E-880, pp. 6. **4071**

Information on toxaphene and D.D.T.-B.H.C. (benzene hexachloride) is presented to guide manufacturers and practical instructions for use in dipping vats are also given. Toxaphene gives satisfactory insect control. D.D.T. alone is satisfactory for lice and horn flies (*Siphona spp.*), but for tick control B.H.C. must be added. Precautions to be observed are listed.

—D. POYNTER.

DAVIDSON, G. (1955). **The principles and practice of the use of residual contact insecticides for the control of insects of medical importance.**—*J. trop. Med.* (*Hyg.*) **58**, 49-56 & 73-80. **4072**

D. discussed the principles involved in the practical application of D.D.T., benzene hexachloride and dieldrin for the control of arthropod vectors of disease and insect pests. He discussed toxicity and persistence of various solutions, emulsions and wettable powders used for residual spraying of buildings and the effective use of aerosols, dusting powders, spreading oils etc.

Specific control measures are described for the eradication of mosquitoes, houseflies, sandflies (*Phlebotomus*), fleas, bedbugs, ticks, lice, cockroaches, mites, midges, blackflies (*Simulium*) and tsetse flies. Resistance to insecticides is discussed briefly.—E.G.

LANCASTER, J. L., Jr. (1955). **Biology and seasonal history of the lone star tick in northwest Arkansas.**—*J. econ. Ent.* **48**, 295-297. **4073**

The average life-cycle of *Amblyomma americanum* took 12 days, the adults feeding for 6 days. Unfed nymphs and adults survived the winter.—JAS. G. O'SULLIVAN.

BRUNDRETT, H. M., RICHARDS, R. & SMITH, C. L. (1955). **Tests of toxaphene, chlordane and strobane against the lone star tick on cattle.**—*J. econ. Ent.* **48**, 223-224. **4074**

All stages of *Amblyomma americanum* on cattle were killed within 48 hours by 0.5% "toxaphene", "strobane" (a chlorinated terpene hydrocarbon), or "chlordane", applied as a spray at the rate of 2 gal. per beast. However none of the 3 insecticides at this conc. afforded 7 days' residual protection against re-infestation.

—D. W. JOLLY.

BÁLINTFFY, I & KOVÁCS, J. (1955). Laboratóriumi kísérletek óvantag (*Argas*) irtására alkalmas halogéntartalmú szerves vegyületekkel.

[Use of organic halogen compounds for the control of argasid ticks.]—*Mag. állator. Lapja.* **10**, 222-227. [English and Russian summaries.] **4075**

Argas persicus ticks were subjected to the action of a number of halogen compounds in gaseous form. Methyl bromide, methyl iodide, allyl bromide and the γ-isomer of benzene hexachloride were lethal to the ticks at certain concentrations. Dichlormethane, carbon tetrachloride, ethyl iodide and ethyl bromide induced a narcotic state.—A.S.

CROSS, F. H. & WHARTON, G. W. (1954). **Techniques for testing the attachment and feeding rate of mites on living hosts.**—*J. econ. Ent.* **47**, 1153-1154. **4076**

The authors described techniques for making observations on the feeding habits of blood-sucking mites on the host. The method essentially consists of trapping the mites in a glass tube, the open end of which is firmly pressed on to the skin of an anaesthetized host. By starving blood-sucking mites for 24 hours the 'biting rate' could be established by a similar method. Nymphs of *Bdellonyssus bacoti* more actively parasitized white rats at 85°F. than at 75°F. and were slightly more active at 95°F.—W. E. PARISH.

See also absts. 3991-3992 & 3994 (Glossina and trypanosomiasis); 4204 (report, Australia).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

DESCHIENS, R., LAMY, L., LIBERMANN, D., COTTET, J. & REYNAUD, R. (1954). Sur les propriétés anthelmintiques des désoxybenzoines basiques. **[Anthelmintic properties of deoxybenzoins.]** — *C. R. Acad. Sci., Paris.* **238**, 168-170. 10 May, 1954. **4077**

Of various deoxybenzoins tested *in vitro* against *Rhabditis macrocerca* and *in vivo* in mice infested with two species of oxyurids or with *Hymenolepis nana* var. *fraterna*, one ("1183 T.H."--2-diethylaminoethoxy-2, 4'-deoxybenzoin) was found to have marked anthelmintic activity. The authors reported satisfactory clinical results in preliminary trials in human patients infested with *Schistosoma haematobium* and *S. mansoni*.
—G. V. LAUGIER.

HIREGAUDAR, L. S. & RAO, S. R. (1955). **An unusual record of *Taenia* with a single circle of hooks from a dog.**—*Curr. Sci.* **24**, 199. **4078**

Description of a taeniid cestode 250 mm. long and possessing only one circle of hooks on the rostellum. It is stated that the absence of the second circle of hooks was not due to traumatic injury.—E.G.

MAGATH, T. B. (1954). **The importance of sylvatic hydatid disease.** — *J. Amer. vet. med. Ass.* **125**, 411-414. **4079**

M. emphasized the importance of the incidence of echinococcus infestation in wild carnivores and herbivores in North America as a reservoir for human hydatid disease. He discussed the ways in which man, by his habits, may acquire infestation from wild animals.—E. J. L. SOULSBY.

TURNER, J. H. (1955). **Preliminary report of experimental strongyloidiasis in lambs.**—*Proc. helm. Soc. Wash.* **22**, 132-133. **4080**

T. studied the pathogenicity of *S. papillosus* in lambs by applying to their skins infective larvae in numbers ranging from 25,000 to 1,500,000. Some succumbed to the infection. The prepatent period was 9 days. Clin. symptoms included anorexia, retarded wt. gain or loss of wt., diuresis, lassitude, anaemia, and the faeces were either soft and pulpy or fluid. Erosion of the mucosa of the small intestine was noted. The content of the intestinal tract was usually a fluid, catarrhal exudate. In a lamb exposed to 1,000,000 larvae congestion was observed in the anterior portion of the diaphragmatic lobes of the lungs with emphysema in the lower lobe of the right lung. Serous exudates and blood were present in interstitial tissue and alveoli. Petechial and ecchymotic haemorrhages were seen in lungs of lambs killed during the prepatent period.
—D. POYNTER.

LEVINE, N. D. & IVENS, V. (1954). **The toxicity of some alkyl sodium sulfate detergents for horse strongyle (Nematoda) eggs and larvae.**—*J. Parasit.* **40**, 419-423. **4081**

The eggs of the small horse strongyles were prevented from hatching, and a 90 - 100% kill of the larval stages achieved as a result of washing them in a 0·05% detergent containing 3, 9-diethyltridecanol-6, or a 0.6% detergent containing 7-ethyl-2-methylundecanol-4, or 1.5% of a detergent containing 2-ethylhexanol, respectively. The sodium sulphate derivative of each compound was used.—D. W. JOLLY.

LEVINE, N. D. & IVENS, V. (1954). **Nematocidal screening tests of cadmium compounds against horse strongyle larvae.** — *J. Parasit.*

40, No. 5-Sect. 2, p. 15. [Only abst. given. Abst. from abst.] **4082**

Screening tests for anthelmintic activity were carried out by mixing the compounds with fresh horse faeces containing eggs of several species of strongyles. The treated samples were allowed to incubate for a week at room temp., and then examined for strongyle larvae by the Baermann technique. Cadmium chloride killed or prevented the development of larvae at a concentration of 0.009%; cadmium bromide, cadmium nitrate and cadmium acetate at a conc. of 0.034%, 0.031% and 0.027%, respectively; cadmium oxide at 0.032%; and cadmium sulphate and cadmium anthranilate at 0.208% and 0.39%, respectively. Cadmium carbonate and cadmium sulphate were inactive at 0.172% and 0.145% respectively.

DORAN, D. J. (1955). **The course of infection and pathogenic effect of *Trichostrongylus axei* in calves.**—*Amer. J. vet. Res.* **16,** 401-409. [Author's summary modified.] **4083**

Ten calves, 3 - 6 months old, were each given from 50,000 to 1,500,000 *Trichostrongylus* larvae, 95% of which were estimated to be *T. axei.* The prepatent period for these infections was 19-30 days, and the max. egg count was usually observed 26-30 days after eggs first appeared in the faeces. Two of the calves were resistant to heavy re-infective doses 4-5 months after the initial infection had subsided. D. described the symptoms of infected calves in relation to the different doses of larvae. Although not producing clin. symptoms, exposure to 50,000-750,000 larvae produced "ringworm-like" lesions in the abomasum, with inflammation and corrugation of the mucosa.

PAVER, H., PARNELL, I. W. & MORGAN, D. O. (1955). **Some factors influencing the seasonal variation in worm egg counts in Scottish hill sheep.**—*J. comp. Path.* **65,** 220-235. [Authors' summary modified.] **4084**

This is a report of a statistical study of factors influencing the worm egg counts on two flocks of Scottish hill sheep during the period November 1944 to August 1952. The spring rise in count was highly significant and was associated with the severity of the preceding winter. The effect of age on worm egg count was highly significant. Hoggs, 6 - 16 months old, had counts some 3 times higher than ewes over 3 years old. Between the 4th and 6th years age had no significant effect on worm egg counts. Sheep born in the same flock in the same year may have widely differing counts and these individual differences persist up to the age of 3 years.

STEWART, T. B. (1954). **The life history of *Cooperia punctata,* a nematode parasitic in cattle.**—*J. Parasit.* **40,** 321-327. [Abst. from author's summary.] **4085**

The life cycle of *C. punctata* is direct, conforming closely to that of *C. curticei.* The first stage larva hatches in 20 hours at 20°-26°C., and moults 30 hours after hatching, after a lethargic period of about 12 hours. The third-stage larva emerges 96 hours after hatching. On ingestion by a susceptible calf the larva exsheaths and it reaches the fourth stage at the end of the fourth day following ingestion. The fourth ecdysis takes place during the seventh day following infection; at this stage the parts of the genital system are all present and readily identifiable. By the tenth day, eggs are forming in the uteri and the nematodes are nearly mature in all respects.

WRIGHT, A. I. (1955). **A method for the concentration of living eggs of *Nematodirus* spp. from faeces and soil samples.**—*Trans. R. Soc. trop. Med. Hyg.* **49,** 300-301. **4086**

W. described a method modified from that of Willmott & Pester [*V.B.* **23,** 149] for the recovery of *Paramphistomum* eggs. After removal of gross particles the material is thoroughly comminuted and passed through a series of sieves of specific sizes. Finally, flotation, using a saturated soln. of magnesium sulphate, followed by washing, results in the *Nematodirus* eggs being freed from extraneous debris and other trichostrongylid eggs.—T. E. GIBSON.

PELLÉRDY, L. & MIKLOVICH, M. (1955). Sertések orsóférgességének kezelése kadmium-antraniláttal. [**Control of *Ascaris* in swine with cadmium anthranilate.**] — *Mag. állator. Lapja.* **10,** 228-229. [English and Russian summaries.] **4087**

Cadmium anthranilate mixed with the food for 3 days was effective against ascarids in pigs. The substance is not toxic and is taken readily with the food.—A.S.

BORAY, J. (1955). Piperazinadipát alkalmazása háziállataink orsóférgességének gyógykezelésére [**Treatment of *Ascaris* infestation with piperazine adipate.**]—*Mag. állator. Lapja.* **10,** 230-232. [English and Russian summaries.] **4088**

Ascariasis in pigs was cured by piperazine adipate given with the food for 3 days at a total dosage of 0.4 g./kg. body wt. The substance was also useful for ascariasis in horses when given in a single dose of 0.2 - 0.4 g./kg. in the drinking water.—A.S.

EMADUDDIN, M. (1954). *Setaria cervi* **in the eye of a goat.**—*Indian vet. J.* **31,** 111-112. **4089**

A note recording the morphological features of an apparently immature female specimen of *S. cervi* recovered from the eye of a goat, which was affected with continuous lachrymation.

—R. N. MOHAN.

See also absts. **4204** (report, Australia); **4206** (report, Nigeria); **4208** (report, Fiji).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

GOTO, J., KATO, S. & HOSHIKAWA, N. (1954). [**Pathological and morphological study of tumours of the bladder in Formosan cattle with haematuria.**]—*Jap. J. vet. Sci.* **16,** 209-218. [In Japanese. Abst. from English summary.] **4090**

In the Shinchikushu district, particularly in the oil field area, bovine haematuria occurs frequently and almost 80% of slaughtered cattle were affected with cystic bladder tumours.

In the early stages the bladder lesions consist of ulcers, soft polypi and papillomata.

In the later stages definite tumours are present; these tumours are of various types macroscopically and on histological examination sarcomatous and carcinomatous changes are found.

The development of these tumours is considered to be the end result of chronic inflammation of the bladder of unknown origin.

SCHULZ, K. C. A. & THOMAS, A. D. (1955). **An unusual osseous growth (osteoma) in the brain of a sheep.**—*J. S. Afr. vet. med. Ass.* **26,** 61-70. [Authors' summary slightly modified.] **4091**

The gross and microscopic appearance of an osteoma presumably arising from the meninges of the brain of a 6-year-old sheep is described. The histogenesis of the tumour is discussed hypothetically.

KROOK, L. (1954). **A statistical investigation of carcinoma in the dog.**—*Acta path. microbiol. scand.* **35,** 407-422. [In English.] **4092**

K. analysed by statistical methods examples of carcinoma encountered in 6.07% of dogs examined P.M. in the Royal Veterinary College, Stockholm, in the period 1935-52. (Heart base tumours and seminomas were excluded.) The average age of the affected dogs was 9.80 years, while the av. age of all dogs examined P.M. was 4.32 years. The Boxer was significantly over-represented in the list of affected breeds, while the Fox Terrier was under-represented.

Changes in the annual incidence of carcinoma were explained by variations in the av. age of dogs examined P.M.

Of 440 dogs with carcinoma, 301 were female and 139 male, whereas in the parent population the proportion was 1,152 female to 1,129 male. The difference arose owing to the high incidence of mammary carcinoma.

The chief organs affected, in a total of 440 carcinomas, were: mammary gland 155 (77 metastasizing), thyroid 98 (35), lung 38 (10), liver 36 (28), and skin 21 (15). There did not appear to be any great differences in the age of dogs affected with carcinoma of different organs. The incidence of skeletal metastases was low.

—E. COTCHIN.

SIEGERT, R. (1955). Die onkolytischen Eigenschaften von Viren. [**Oncolytic properties of viruses.**]—*Arch. ges. Virusforsch.* **6,** 93-117. **4093**

This is a useful review of experimental work on the localization, proliferation, and damaging (oncolytic) effect of viruses on tumours in experimental animals, and of the application of these observations to human cancer. Mention is made of viruses, pathogenic to domestic animals, that are amongst those that have been studied. It is pointed out that, since different viruses have different "spectrums" of activity on different tumours, it will be necessary to carry out screening tests of viruses to see which may be active against human cancer, and not merely to rely on experimental observations with animal tumours. Attempts to adapt viruses to acquire effective oncolytic activity against a human cancer might be possible.—E. COTCHIN.

LUCAM, F. (1954). Les leucoses animales sont-elles dues à un ultra-virus? [**Is leucosis in animals caused by virus?**]—*Bull. Soc. Sci. vét. Lyon.* **56,** 255-273. Discussion pp. 285-288. **4094**

A review of experimental and other observations suggesting the possibility of a viral origin for mammalian leucosis, and indicating the need for further investigation.—E. COTCHIN.

DRIEUX, H. (1955). Les leucoses des bovidés. [**Bovine leucosis.**]—*Cah. Méd. vét.* **24,** 105-

106. [Only abst. given. Abst. from abst.] **4095**

A brief account, with special consideration of aetiology, pathogenesis, and diagnosis. No new facts are given in this abstract.

—E. COTCHIN.

BURMESTER, B. R., GENTRY, R. F. & WATERS, N .F. (1955). **The presence of the virus of visceral lymphomatosis in embryonated eggs of normal appearing hens.** — *Poult. Sci.* **34,** 609-617. [Authors' summary modified.] **4096**

The occurrence of the virus of visceral lymphomatosis in the eggs of 22 hens from an infected population and 2 hens from an isolated population was determined by the i/p inoculation of groups of about 50 susceptible chicks with a homogenate of a pool of livers from four 15-day embryos of each hen under test. Seventeen of the 22 hens of the infected population shed enough virus into their eggs to cause a significant incidence of disease in inoculated chicks. No lymphomatosis occurred either in chicks inoculated with embryonic material of hens of the isolated population or in the one lot of non-inoculated controls.

The shedding of virus was directly related to the incidence of visceral lymphomatosis in sibs of the dams under test; however its relation to disease in the progeny was not apparent.

GENTRY, R. F. & BURMESTER, B. R. (1955). **The propagation of the virus of visceral lymphomatosis in embryonated eggs.**—*Poult. Sci.* **34,** 669- 672. [Authors' summary slightly modified.] **4097**

Strain RPL 12 of visceral lymphomatosis virus was carried through 5 passages in chick embryos. Uninoculated chicks, and chicks receiving material from untreated embryos, remained free from tumours; 80% of those inoculated with the original virus filtrate when day-old, and 64% of those inoculated as embryos, developed tumours. Of chicks inoculated with material from the 1st, 3rd, and 5th embryo passages, 65, 75, and 80%, respectively, developed tumours.

Since the dilution of the virus which would occur if no growth took place was too great to account for the tumour incidence in the 3rd and 5th passage inoculated groups, it was concluded that growth of the virus had taken place.

See also abst. **4212** (book, liver and cancer).

NUTRITIONAL AND METABOLIC DISORDERS

NEUMANN-KLEINPAUL, K., ZELLER, R. & JACOB, K. (1954). Einseitige Haferfütterung und ihre Folgen. **[Effects of feeding horses exclusively with oats.]**—*Zbl. VetMed.* **1,** 682-695. [English, French and Spanish summaries.] **4098**

A condition of trotting horses associated with a diet consisting almost exclusively of oats, and known in Germany as "going sour", is characterized by loss of appetite and fatigue. The condition was reproduced in 3 horses by the exclusive feeding of oats for 3 weeks. At the end of this time the horses refused oats and their consumption of water decreased. They were reluctant to move; the faeces were paste-like and offensive. At this stage the serum potassium averaged 14.6 mg.% compared with 20.1 mg.% before the oat diet commenced. Similarly, blood calcium fell from an average of 11.8 mg.% to 9.9 mg.%, and inorganic phosphorus increased from an average of 2.4 mg.% to 3.7 mg.%. The horses returned to normal within 3 weeks after a return to normal diet. The authors suggested that the condition was due mainly to potassium deficiency, caused by the withdrawal of potassium from the body in the neutralization and excretion of the relatively large amounts of phosphoric acid in oats.—R.M.

KAARDE, I. A. (1954). **[Dissemination and aetiology of toxic liver dystrophy of pigs in Estonia.]**—*Veterinariya, Moscow.* **31,** No. 8, pp. 42-43. [In Russian.] **4099**

The mortality of piglets in Estonia during 1952 was 9.3% of all those born, toxic liver dystrophy being the chief cause of death.

K. described the pathological and bacteriological findings, and discussed possible aetiological factors. From the practical point of view the disease was considered to be an intoxication from ingestion of mouldy and decomposing foodstuffs such as cotton-seed cake, red cabbage, potatoes and other vegetables. Other factors, such as deficiency of vitamins A, B or C, acted as predisposing causes in the experimental reproduction of the disease.—F. A. ABBEY.

HEUSER, G. F. (1955). **Influence of the ration on gizzard development in chickens.**—*World's Poult. Sci. J.* **11,** 132-138. **4100**

The coarseness and quantity of the feed influences the development of the gizzard muscles in growing birds. Grit in the diet is a strong stimulus to the development of these muscles.

—A.S.

PRESTHEGGE, K. (1954). Forsøk med lav til drøvtyggere og svin. **[Experiments with**

lichen for ruminants and swine.]—*Norg. Landbrukshøisk. Beretn. ForForsøk.* No. 76. pp. 87. [Abst. from English summary.] **4101**

In an experiment with ewes the basic feed given covered half the food requirements, the deficit being made up by wood cellulose (1 kg. dry matter) in the controls, and the lichen *Cladonia alpestris* (1.93 kg. dry matter) in the experimental animals. Both groups fared equally well over the 97-day experimental period, and the lambing figures were equal. In another experiment with cows 2.8 kg. of lichen dry matter replaced 1 kg. wood cellulose dry matter. The milk yield, when represented as 4% fat-corrected milk, was unaffected. In these two experiments the lichen had a feed value of 0.46 and 0.43 units respectively. Lichens and lichen products were not accepted by pigs. The ancient practice of gathering lichens—mainly *C. alpestris*—for fodder still persists in parts of Norway where the gathering grounds are readily accessible.—A.S.

East, J. (1955). **The effect of certain plant preparations on the fertility of laboratory mammals. I.** *Polygonum hydropiper* **L. II.** *Psoralea corylifolia* **L. III.** *Capsella bursa pastoris* **L. IV.** *Sanguisorba officinalis* **L.**—*J. Endocrin.* **12,** 252-260, 261-266, 267-272 & 273-276. [Author's summaries modified.] **4102**

I. *Polygonum hydropiper,* administered as dry, powdered whole plant, impaired the fertility of male and female mice and produced sterility in female g. pigs when included in the normal diets at levels calculated to give an intake of 1 g. per mouse, and 9 g. per g. pig per day. These effects were temporary. *P. hydropiper* precipitated vaginal opening in immature mice within 5 days of the start of feeding and inhibited the normal cyclic occurrence of oestrus. No evidence of oestrogenic or androgenic activity was obtained, and it is suggested that *P. hydropiper* affects the gonadotrophic function of the pituitary.

II. Dry powdered seeds of the legume *Psoralea corylifolia* proved to be oestrogenic when included in the normal diet of adult female mice at levels calculated to give an intake of 0.35 g. or 0.175 g. seed per day. Both spayed and intact females exhibited intense vaginal cornification during treatment, but the effect was reversible. The fertility of adult females was impaired by consumption of 0.35 g. of the seed for 37-77 days, and an abnormal proportion of matings made with treated or normal partners was infertile, resulting in pseudo-pregnancies. The animals recovered within a week of transfer to a normal diet. The fertility of male mice was not impaired by treatment for 46 days. Consumption of 0.25 g. of the seed daily precipitated vaginal opening in immature female mice. The oestrogenic potency of the plant material was low and psoralen(e) (furo-2:3:7:6-coumarin), known to occur in the kernel of *P. corylifolia,* was not the active constituent.

III. *Capsella bursa pastoris* ('Shepherd's Purse'), dried and ground, was added at rates of 20 and 40% to the stock diet of male and female mice. Diets containing similar proportions of grass meal were used for comparison. At the 40% level, both materials impeded ovulation and produced temporary infertility in males and females; 20% *Capsella* did not affect female fertility, and previous experiments had shown that an equiv. amount of grass meal was harmless. Neither substance affected the establishment of vaginal patency in immature female mice or produced signs of oestrogenization in spayed animals. The infertility produced was probably due to the high level of these constituents in the diet rather than to specific anti-fertility activity, but the latter possibility has not been excluded entirely.

IV. Mice and g. pigs were fed diets containing 20 and 30% whole *Sanguisorba officinalis,* dried and ground. In immature female mice, premature vaginal opening and constant dioestrus were produced. Adult animals showed oestrus cycles of abnormal length, owing to a prolongation of the dioestrus phase, but mated and became pregnant readily during treatment. Lactation appeared to be affected adversely. Male fertility was unimpaired. The plant material had no oestrogenic activity when fed to spayed mice, and did not produce vaginal opening in spayed g. pigs.

Anon, (1954). **Feed urea in ruminant nutrition. Literature abstracts and bibliography.**—pp. ix+28+151. New York: Nitrogen Division Allied Chemical & Dye Corporation. **4103**

This bibliography of the use of urea in ruminant nutrition consists of 373 entries and 151 abstracts, with an author index. The abstracts are fairly detailed, each occupying one of the large-size pages. There is loose-leaf binding.

—R.M.

Hale, W. H. & King, R. P. (1955). **Possible mechanism of urea toxicity in ruminants.**—*Proc. Soc. exp. Biol., N.Y.* **89,** 112-114. [Authors' summary copied *verbatim.*] **4104**

Administration of ammonium carbamate

either orally or intravenously produced symptoms in ruminating lambs similar to those observed during acute urea toxicity. It is proposed that urea toxicity in the ruminant is not due to ammonia, but to ammonium carbamate. It is suggested that conditions exist in the rumen after the oral administration of urea which would lead to the formation of ammonium carbamate.

WASSERMAN, R. H. & TRUM, B. F. (1955). **Effect of feeding dogs the flesh of lethally irradiated cows and sheep.**—*Science.* **121,** 894-896. **4105**

Meat from irradiated cows was not poisonous to greyhound and beagle puppies.—A.S.

BELTRAN, A. & SANZ SANCHEZ, F. (1953). Influencia de ciertos antisépticos en las propiedades fermentativas de extractos de panza "in vitro". [**Influence of some antiseptics on fermentation in rumen contents** *in vitro*.]—*An. Inst. Invest. vet., Madrid.* **5,** 151-157. [English and German summaries.] **4106**

The authors studied the inhibitory action of a number of antifermentative substances on the fermentation of rumen contents *in vitro,* with or without added sugars.—A.S.

SMITH, D. M. (1955). **Use of antibiotic supplements with separated milk in pig feeding**—*N.Z. J. Agric.* **90,** 85 & 87-88. **4107**

Separated milk forms the staple pig-food in New Zealand. Experiments are reported which show that this fact vitiates the application of American and British research to New Zealand farms. Streptomycin and penicillin produced only minor gains. The indiscriminate use of antibiotic feeding supplement is therefore unwarranted.—P. H. HERBERT.

YACOWITZ, H., ROSS, E., SANGER, V. L., MOORE, E. N. & CARTER, R. D. (1955). **Hemorrhagic syndrome in chicks fed normal rations supplemented with sulfaquinoxaline.** —*Proc. Soc. exp. Biol., N.Y.* **89,** 1-7. [Authors' summary modified.] **4108**

A haemorrhagic syndrome occurred in chickens fed 0.1% sulphaquinoxaline in the presence of 3-5% alfalfa (lucerne) and 5 mg. of menadione (synthetic vitamin K) per lb. of feed. Haemorrhages closely resembled those encountered in field cases of haemorrhagic disease and, in many cases, were accompanied by reduced haematocrit values. In some groups blood clotting time was increased by feeding sulphaquinoxaline. A higher incidence of haemorrhages was observed in chickens fed sulphaquinoxaline in broiler rations than in chickens fed starter rations containing the drug. Feeding of iodinated casein as a stress factor increased the toxic effect of sulphaquinoxaline. The toxic effect of sulphaquinoxaline was slight in chicks fed the drug starting at day-old or at 2 weeks of age but was more pronounced in chickens fed the drug at 3, 4 or 5 weeks of age. Dietary penicillin appeared to increase the toxicity of sulphaquinoxaline.

These findings should not be interpreted to indicate that sulphaquinoxaline and similar substances cannot be used as satisfactory coccidiostats under certain conditions.

SHORLAND, F. B., WEENINK, R. O. & JOHNS, A. T. (1955). **Effect of the rumen on dietary fat.** [Correspondence.]—*Nature, Lond.* **175,** 1129-1130. **4109**

The main fatty constituent of the diet of pasture-fed animals is linolenic acid, which is abundant in the depot fat of non-ruminants, but appears only in traces in the depot fat of ruminants. The authors compared the fatty acid composition of pasture with that of sheep rumen contents. There was within the rumen a great increase in saturated acids, with a corresponding decrease in unsaturated acids. The fatty constituents of sheep rumen contents resembled the depot fat in that animal. Linolenic acid, incubated with rumen contents, was hydrogenated to monoene and diene acids. The authors considered that the action of the rumen on dietary fats would explain the stability of composition of depot fats in the face of changes in the nature of the dietary fat.—A.S.

CHALMERS, M. I. & SYNGE, R. L. M. (1954). **Ruminal ammonia formation in relation to the protein requirement of sheep. II. Comparison of casein and herring-meal supplements.** —*J. agric. Sci.* **44,** 263-269. [Authors' summary copied *verbatim.* For part I, see *V.B.* **25,** 3307.] **4110**

Herring-meal supplements fed to sheep on a basal diet low in protein were more effective than casein supplements in promoting nitrogen retention and growth. The herring-meal supplements caused less extensive formation of ammonia in the rumen than did the casein supplements. This is considered responsible for the differences found in the value of the proteins. Meat from the sheep fed herring meal was not tainted in flavour. The use of formaldehyde to preserve herrings before making them into meal had no deleterious effects when the meal was fed to sheep.

ANNISON, E. F., CHALMERS, M. I., MARSHALL, S. B. M. & SYNGE, R. L. M. (1954). **Ruminal ammonia formation in relation to the protein requirement of sheep. III. Ruminal ammonia**

formation with various diets.—*J. agric. Sci.* **44,** 270-273. [Authors' summary slightly modified.] **4111**

Ruminal ammonia concentrations were measured in sheep receiving basal diets of hay and different types of meal with various supplementary sources of protein. Ammonia production from groundnut meal was great and from maize products slight; from herring meal it was intermediate. The extent of ammonia production from a given amount of protein-rich material was decreased when the amount of starch or cereal meal fed at the same time was increased.

BECKER, R. B., ARNOLD, P. T. D., KIRK, W. G., DAVIS, G. K. & KIDDER, R. W. (1953). **Minerals for dairy and beef cattle.**—*Bull. Fla agric. Exp. Sta.* No. 513, pp.51. **4112**

This pamphlet contains four papers:—"Minerals for dairy cattle"; "Mineral consumption by cattle on Florida ranges"; "Relation of copper and molybdenum to cattle nutrition"; and "Recommended mineral mixtures".

The third paper deals with deficiency symptoms in cattle on sandy and on peat soils. It includes mention of a condition on peat soils, known as "paces": affected animals develop a gait recalling that of a pacing horse, together with changes in the articular cartilages. Copper toxicity, and the inter-relationships of copper, molybdenum, phosphorus and cobalt are also discussed.—A.S.

WYNNE, K. N. & MCCLYMONT, G. L. (1955). **Copper-molybdenum-sulphate interaction, in induction of hypocuprosis.** [Correspondence.] —*Nature, Lond.* **175,** 471-472. **4113**

Hypocuprosis was diagnosed in sheep on New South Wales pastures containing 3 - 100 p.p.m. of copper, 3 - 9 p.p.m. of molybdenum and 0.1 - 0.7% of sulphate. When similar levels were fed experimentally to Merino sheep they also developed hypocuprosis. This effect was facilitated by increased molybdenum, but also by increased sulphate. Liver analyses and other data are presented.—P. H. HERBERT.

ANON. (1954). **Molybdenum in agriculture. Dangers to livestock emphasised. Vanadium suggested as substitute.** — *N.Z. Agriculturist.* **8,** No. 5. pp. 1-2 & 8. **4114**

Failure of farmers to appreciate the minute quantities of molybdenum required for pasture stimulation has led to overdosage, with consequent poisoning of livestock. Literature concerning molybdenum and related trace metals suggests that vanadium might form a safer substitute. It has similar stimulant properties but is less liable to precipitate copper deficiencies.

—P. H. HERBERT.

NEALES, T. F. (1955). **Relation of magnesium supply to growth and net assimilation-rate in barley.** [Correspondence.] — *Nature, Lond.* **175,** 429-430. **4115**

Magnesium assimilation-rate and total dry weight of water-cultured barley rose sharply when the magnesium concentration of the nutrient was increased from 0.41 to 3.7 p.p.m. The magnesium content of the leaves increased concurrently from 0.07 to a critical value of 0.12%. After this, although the foliar concentration continued to rise, there was no further increase in magnesium assimilation or in total dry weight.

—P. H. HERBERT.

REID, B. L., DAUGHERTY, H. K. & COUCH, J. R. (1955). **The stability of vitamin A in mixed feeds and premixes.**—*Poult. Sci.* **34,** 603-608. [Authors' summary slightly modified.] **4116**

Data have been presented which show the stability of vitamin A from stabilized dry concentrate and a fish-liver oil concentrate when mixed with several rations. There was a rapid loss of vitamin A activity from the fish-liver oil in the feed, while the stabilized dry concentrate retained in most cases more than 85% of the vitamin A potency throughout a 4-month storage period at room temp. The same rations when stored at 42°F. exhibited a less rapid loss of vitamin A from the fish-liver oil source, indicating that temp. had a marked effect on vitamin A stability. The chemical vitamin A values obtained were checked by biological studies with chicks, and it was found that there was a very good agreement between the vitamin A content and the biological reactions. There was 100% mortality in chicks fed feed supplemented with fish oil after one month of storage. Chicks fed identical vitamin A-free diets supplemented with the stabilized concentrate grew at a normal rate and were in a healthy condition throughout the experimental period in all 4 experiments.

NAUMOV, V. A. (1955). **[The "white muscle" disease.]**—*Veterinariya, Moscow.* **32,** No. 1, pp. 29-34. [In Russian.] **4117**

This disease of quite unknown aetiology, affecting calves, lambs and piglets, consists of an acute inflammatory-degenerative process in the muscles of the skeleton and the heart. Losses from it are heavy. In very young lambs and calves the picture is sometimes that of a stormy

toxic illness. P.M. examination reveals white foci and streaks in the swollen disintegrating muscles. Histological examination reveals the picture of a serous-parenchymatous myositis, proceeding to myofibrosis and myosclerosis. Until a few years ago no treatment was known. Penicillin, used recently, seems to have an effect worth following up.—A. MAYR-HARTING.

SCOTT, M. L., HILL, F. W., NORRIS, L. C., DOBSON, D. C. & NELSON, T. S. (1955). **Studies on vitamin E in poultry nutrition.**—*J. Nutr.* **56,** 387-402. [Authors' summary modified.] **4118**

A basal diet has been developed which appears to be suitable for use in the study of uncomplicated vitamin E deficiency in the chick. The occurrence of vitamin E-deficiency symptoms in chicks receiving this basal diet was not influenced to a measurable extent by the presence or absence of pro-oxidants or antioxidants in the diet. The symptoms in chicks on this diet were, for the most part, similar to those which have been described previously for vitamin E-deficient chicks. In addition, they developed a microcytic anaemia and a low reticulocyte count, indicating that vitamin E may be concerned in erythropoiesis. Necrosis of the liver does not appear to be a symptom of vitamin E deficiency in the chick. Erosion of the gizzard lining was not influenced by the level of vitamin E in the diet but appeared instead to be due to a deficiency of essential amino-acids, particularly methionine and cystine. The brewers' yeast used in these studies contained biological activity similar to that of vitamin E.

AFONSKY, D. (1954). **Folic acid deficiency in the dog.**—*Science.* **120,** 803-805. **4119**

An adult bitch used as one of the controls in a nutrition study lost weight steadily, the haemoglobin level fell to 11 g./100 ml. and the packed cell volume to 33%. Ferrous ammonium citrate, choline chloride and increase in the vitamin B supplements had no effect. Following the s/c administration of 30 mg. folic acid, the blood values returned to normal within 14 days. A second fall in Hb was controlled by a dosage of 0.015 mg./kg./day. The deficiency was associated with hypoplasia of the bone marrow, hypochronic anaemia and glossitis. Some dogs may be unable to synthesize folic acid.
—A. SEAMAN.

HINE, D. C. & DAWBARN, M. C. (1954). **The determination of vitamin B_{12}-activity in the organs and excreta of sheep. II. The influence of cobalt on the production of factors possessing vitamin B_{12}-activity in the rumen contents of sheep.**—*Aust. J. exp. Biol. med. Sci.* **32,** 641-652. **4120**

The withdrawal of supplementary cobalt from sheep subsisting on a cobalt-deficient diet caused a marked fall in the vitamin B_{12}-activity of the rumen contents. The greater part of this decline occurred in the first 3 days. Provided that appetite was maintained, there was no further loss of vitamin B_{12}-activity after the first week. The true vitamin B_{12}, as measured by the *Ochromonas* tube assay, was always less than the activity estimated by the *Bact. coli* mutant plate or tube assay or the *Lactobacillus leichmannii* tube assay. The *Bact. coli* plate assay invariably gave substantially higher results than the other methods.—R. L. REID.

ROSENTHAL, H. L. & HAMPTON, J. K. (1955). **The absorption of cyanocobalamin (vitamin B_{12}) from the gastro-intestinal tract of dogs.**—*J. Nutr.* **56,** 67-82. **4121**

The authors showed that vitamin B_{12} was not absorbed from the dog's stomach. It was absorbed from ligated and unligated dog duodenum when placed there at concentrations of 50 and 100 μg./kg.; a measurable increase in B_{12} activity of plasma occurred and an increase in its excretion in urine was seen. The major portion of B_{12} administered by i/v injection (1.5 μg./kg.) was eliminated in the urine.—D. POYNTER.

HIBBS, J. W. & POUNDEN, W. D. (1955). **Studies on milk fever in dairy cows. IV. Prevention by short-time, prepartum feeding of massive doses of vitamin D.**—*J. Dairy Sci.* **38,** 65-72. [Authors' summary and conclusions modified. For previous parts see *V.B.* **18,** 530, **19,** 543 & **22,** 2168.] **4122**

Various levels of vitamin D (5, 10, 20, and 30 million units per day in the form of irradiated dry yeast and irradiated ergosterol in oil) were fed to mature Jersey cows for 3 to 8 days before parturition. Criteria used for determining the effectiveness of this treatment in preventing milk fever were clin. observations and the maintenance of high blood serum levels of Ca and P. Some protection was afforded by doses of 5 and 10 million units of vitamin D, and complete protection by the higher doses. The authors recommended the feeding of 30 million units of vitamin D per day for between 3 and 7 days before parturition as a simple, safe and effective method for preventing milk fever. The minimum effective dose of the vitamin was not accurately determined.

See also absts. **4204** (report, Australia); **4214** (book, animal nutrition); **4215** (annotated bibliography of vitamin E); **4216** (book, calf rearing).

DISEASES, GENERAL

BINNERTS, W. T. & BROUWER, E. (1954). **Analysis of milk in deficiency diseases and intoxications of cattle.** [Correspondence.]—*Nature, Lond.* **174,** 974. **4123**

The authors recommended the examination of milk samples as a way of studying the levels of vitamins, iodine, copper and other elements, and also such contaminants as insecticides, in the diet of cattle. In a provisional survey of a district, pooled milk of a milk centre should be examined.—A.S.

ŠTERK, V. & DORTEVIĆ, Ž. (1954). KH reakcija kao serološki metod ispitivanja. **[A modified complement fixation-haemagglutination test.]**—*Vet. Arhiv.* **24,** 45-51. [In Croat. English and German summaries. Abst. from German summary.] **4124**

The ordinary complement-fixation test for glanders yielded 4 false-positive reactions in 8,000 horses examined. The modified c.f. test described by Pfeiler gave accurate results in these horses. There was some evidence, based on examination of serum from 54 mares recovered from dourine, that the modified c.f. test was more reliable than the ordinary c.f. test in the diagnosis of dourine.—R.M.

WAMBERG, K. (1955). Spat. Undersøgelse over aetiologi og patogenese. En ny behandling perifer neurektomi. **[Spavin. Its aetiology, pathogenesis and treatment.]**—*Thesis, Copenhagen.* pp. 148. [English and German summaries. Abst. from English summary.] **4125**

A detailed account of the author's work on spavin and its treatment by peripheral neurectomy, as reported at the XVth International Veterinary Congress [*V.B.* **25**, 483].—R.M.

JONES, T. C., DOLL, E. R. & BROWN, R. G. (1954). **The pathology of equine incoordination (ataxia or "wobbles" of foals).**—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 139-149. **4126**

Equine incoordination ("wobbles") was investigated in 30 horses killed at various stages of the disease; two normal animals of similar age were used as controls. Areas of malacia with indications of bilaterally symmetrical ascending and descending degeneration were found in the cervical section of the spinal cord. Projections of the vertebrae or intervertebral disc into the spinal canal, causing narrowing of the lumen, were seen in 14 cases. No gross lesion of the canal was visible in the rest although lesions of the spinal cord were present. There was inflammation of the articular processes of the cervical and thoracic vertebrae and, in some of the early cases, of the spinal nerves. In the brain microscopic lesions were limited to a few isolated swollen axons and some glial nodules in the restiform body; these were present in a few cases only. Severe inflammation of the peripheral nerves was noticed in animals killed very early in the course of the disease. There were no lesions in any of the viscera and there was only slight atrophy of some of the cervical spinal muscles.—T.E.G.R.

HAYMAN, R. H. (1955). **Studies in fleece-rot of sheep: some ecological aspects.**—*Aust. J. agric. Res.* **6,** 466-475. [Abst. from author's summary.] **4127**

Previous work [*V.B.* **24,** 2884] has indicated the importance of climatic factors, particularly rainfall, in the development of fleece-rot. Of 19 outbreaks recorded over an 8-year period, 16 occurred during calendar months which had 8 or more wet days and 4 or more inches of rain.

Using these data as criteria, rainfall records from 18 selected towns in south-eastern Australia for the period 1911-1940 were examined in order to give broad definition to zones in which fleece-rot might be expected as a rare or frequent occurrence.

In some localities shearing during certain months of the year would assist sheep to escape fleece-rot, as they would be in short wool when it was most likely to occur.

SMITH, H. C. (1955). **Swine encephalitis.**—*Vet. Med.* **50,** 250-255 & 286. **4128**

S. discussed (without citing references) some of the types of swine encephalitis known to be caused by bacteria and viruses. He postulated the existence of 2 hitherto undescribed toxic types. One is caused by intestinal toxins which, in the presence of some kinds of hepatic dysfunction, may gain access to the c.n.s.; the other, by analogy with the rat, may be caused by a penicillamine formed by the breakdown of penicillin in the body.—J. T. DONE.

LARSKI, Z. (1955). "Choroba obrezęnkowa" u świń. **[Oedema disease in pigs.]**—*Méd. vét., Varsovie.* **11,** 337-339. **4129**

L. discussed the literature on oedema disease of pigs. It does not appear to have been reported in Poland, but he described 3 cases where, during experiments connected with Teschen disease, experimental pigs died 4 - 7 days after intracerebral inoculation, exhibiting symptoms of "bowel oedema". Subsequent histological examination of these pigs and animal inoculation

tests revealed that they were not affected with Teschen disease. L. suggested that there may be some connexion between the two diseases.

—M. GITTER.

CANESSA, S. (1954). Sull'eziopatogenesi della malattia degli edemi del suino. **[The pathogenesis of oedema disease of pigs. Experimental transmission to rabbits.]**—*Veterinaria, Milano.* **3,** No. 4. pp. 13-17. [English summary.] **4130**

By s/c inj. of a 10% brain and cord suspension in saline from piglets, stated to have died from oedema disease, C. claimed to have produced five passages in rabbits of the infective agent of oedema disease. Following inoculation the rabbits developed paralysis of the fore limbs and died within a few hours. P.M. no lesions were found and bacteriological examination of their carcasses was negative. No attempts were made to reproduce the disease in pigs with brain and cord material from these rabbits.—E.G.

BAUMANN, R., KRENN, E. & LIEBISCH, H. (1955). Die käsige Lymphknotenentzündung der Schweine. III. Übertragungsversuche. **[Caseous lymphadenitis in swine. III. Experimental transmission.]** — *Wien. tierärztl. Mschr.* **42,** 209-215. [English, French and Italian summaries.] **4131**

The authors examined the pathogenicity of the organism of porcine caseous lymphadenitis [see *V.B.* **25,** 3350] when injected by various routes into g. pigs, hamsters, rabbits, fowls, mice and rats. The pathogenicity, as opposed to that of other acid-fast organisms, was very low.

—A.S.

ALBERTSEN, K. (1954). Mikroti hos svinet. **[Microtia (hypoplasia of the external ear) in pigs.]**—*Nord. VetMed.* **6,** 443-456. [In Danish. English and German summaries. Abst. from English summary.] **4132**

During 12 months' meat inspection at a bacon factory, the author observed hypoplasia of the external ear (microtia) in 7 pigs. In 6 of these the condition was unilateral. The ear flap was about one third of its normal size, and there was atresia of the bony and cartilaginous parts of the external acoustic meatus. The tympanic cavity was poorly developed: the tympanic membrane and auditory ossicles were absent.

—R.M.

SOAVE, O. A. (1954). **Clinical electrocardiograms of the dog.**—*Amer. J. Vet. Res.* **15,** 336-337. **4133**

S. compared electrocardiograms from normal dogs and from dogs with renal disorders. Potassaemia caused a slowing of the heart rate.—A.S.

GÖBEL, F. & ENGLERT, H. K. (1955). Intraperitoneales Haematom nach Milzruptur beim Hunde. **[Intraperitoneal haematoma and rupture of the spleen in dogs.]**—*Tierärztl. Umsch.* **10,** 57-58. **4134**

Traumatic rupture of the spleen and subsequent intraperitoneal haematoma formation in the dog was successfully treated by surgical removal of the spleen.—W. G. SILLER.

SCHERER, H. (1954). Nebennieren- und Schilddrüsenveränderungen beim enzootischen Herztod des Huhnes. **[Histology of the adrenal and thyroid glands in round heart disease in fowls.]**—*Inaug. Diss., Munich.* pp. 28. [Mimeographed.] **4135**

The adrenal and thyroid glands of 40 fowls, mainly Brown Leghorns, which had died from typical round heart disease, were examined histologically. The findings in the thyroids were non-specific and variable. The adrenal glands showed only changes of acute stress and hyperaemia.—W. G. SILLER.

WILSON, J. E. & SILLER, W. G. (1954). **Round heart disease in the fowl.** — *J. comp. Path.* **64,** 41-51. [Authors' summary modified.] **4136**

Within recent years "round heart" disease has become much commoner in Scotland and the north of England. In 1952 there were 19 outbreaks (almost twice the number recorded in 1951) and in the first 6 months of 1953 there were 29. There is a well marked seasonal incidence, most cases occurring in late winter and spring. The history of outbreaks is conflicting. In some there are indications of genetic selectivity; in others, birds are affected indiscriminately. The authors gave detailed accounts of the symptoms, pathology, and histopathology of the disease and discussed possible aetiological factors.

SIEGMANN, O. & WOERNLE, H. (1954). Beitrag zum enzootischen Herztod der Hühner. **[Round heart disease of fowls.]**—*Arch. exp. VetMed.* **8,** 465-477. **4137**

From January 1951 to December 1953 round heart disease was diagnosed P.M. in 204 fowls from 156 flocks. The disease occurred mainly in winter and early spring, particularly in laying pullets. There appeared to be an acute, a subacute and a chronic form. Mortality in infected flocks was about 25%. Brown Leghorns appeared to be more susceptible than other breeds. Nutritional and environmental factors

did not seem to be of aetiological importance. Healthy fowls could be infected when placed in contact with infected flocks. Attempts to set up the disease by s/c, i/m, i/p and i/v injection of organ suspensions and cardiac fluid from fowls which had died from the disease were unsuccessful. On one occasion, however, the authors succeeded in producing a condition and a P.M. picture resembling round heart disease, by intracloacal application of infected cloacal mucosa, ground and suspended in saline. By this method three passages were obtained. This appeared to support a suggestion that the disease may be transmitted by coitus. Attempts to isolate an infective agent failed.—E.G.

RUST, J. H., TRUM, B. F., LANE, J. J., KUHN, U. S. G., PAYSINGER, J. R. & HALEY, J. J. (1955). **Effects of 50 roentgens and 25 roentgens fractional daily total-body γ-irradiation in the burro**—*Radiation Res.* **2**, 475-482. [Authors' summary modified.] **4138**

A report of a study on the effect on donkeys of 50 r and 25 r fractional daily total-body cobalt-60 γ-radiation. The mean survival time in the group exposed to 50 r/day was 30 days with a range of 25 to 35 days, and in those exposed to 25 r/day it was 63 days with a range of 47 to 87 days. All haematological values were decreased. Lymphocytes were the most sensitive cells, and eosinophiles the most resistant. Platelets were reduced significantly with 725 r at 25 r/day. A pronounced hyperferraemia was observed after 500 r in the 50 r/day animals and after 200 r in the 25 r/day group. This elevation continued until near death. The clinical syndrome was characterized by weight loss, ulcerations, hyperaesthesia, and haemorrhagic diathesis. The authors discussed the similarities of response of the animals receiving 50 and 25 r/day with those receiving 100 to 400 r/day.

SAITO, K. (1955). Recherches sur la contamination radio-active des animaux au Japon. **[Radio-active contamination of animals in Japan.]**—*Bull. Off. int. Epiz.* **44**, May, pp. 376-380. **4139**

The symptoms seen in horses which survived the Hiroshima atomic bomb explosion were similar to those in human beings. There were burns on the side of the body exposed to the explosion. The body temp. rose to 102°F. and remained at this level for 2 weeks. There was loss of weight, appetite and balance, oedema of the chest, and a considerable fall in the number of circulating w.b.c. At P.M. examination there were, among other changes, haemorrhages of the intestine and cardiac muscle, and beneath the serous membranes of the organs.—A.S.

BUSTAD, L. K. (1955). **Biological implications of atomic test fallout.**—*N. Amer. Vet.* **36**, 281-283. **4140**

Clinical signs of irradiation sickness in farm animals are briefly discussed. Injuries from fallout in areas near to atomic test ranges have, apparently, been minimal in the U.S.A. Suspected exposure to irradiation should be confirmed by examination of samples from thyroids, bone and injured skin.—P. H. HERBERT.

POISONS AND POISONING

TESINK, J. (1954). Fluorvergiftiging bij runderen en haar beinvloeding door het toedienen van aluminiumsulfaat. **[Fluorosis in cattle. Therapeutic influence of aluminium sulphate.**—*Thesis, Utrecht.* pp. 184. [English, French and German summaries.] **4141**

T. studied chronic fluorine poisoning in cattle induced by feeding with grass polluted by gas from a phosphate factory. In experimental and spontaneous cases therapeutic results were obtained by feeding aluminium sulphate (daily doses of 6-9 mg. per kg. body wt.

—C. A. VAN DORSSEN.

GÜNTHER, H. (1954). Fütterungsversuche mit Flugstaub einer Metallhütte an Pferden und einem Schaf. **[Feeding experiments in horses and a sheep with fume deposits from a lead works in Germany.]**—*Inaug. Diss., Hanover.* pp. 47. **4142**

K. investigated the symptoms in livestock in a region affected by fumes from a metal foundry. These included a condition resembling rickets, swelling of the joints leading to stiffness, and a poor state of nutrition. He reported an experiment in which fume deposits from the foundry in question or from another foundry, were mixed with the diet of three fowls. The results suggested that the lead content of the fume deposits played an important role in the poisoning.—A.S.

ĆOSIĆ, F. & RIGLER, L. (1954). Prilog klinici i terapiji otrovanja konja sumpornim dioksidom sa osvrtom na primenu i delovanje eteričnog terpentiskog ulja (aetheroleum terebinthinae). **[Treatment of sulphur dioxide poisoning in horses with turpentine oil.]**—*Vet. Glasn.* **8**, 743-755. [In Croat. Abst. from French summary.] **4143**

The authors claimed success for the i/m

injection of a single dose of 8-10 ml. turpentine oil into the pectoral muscles of horses accidentally poisoned with SO_2 gas during treatment for mange. The effectiveness of this treatment seemed to depend on the massive inflammatory oedema which developed around the site of injection.—R.M.

ANON. (1955). **Agene treatment to end.**—*Brit. med. J.* Jan. 1st, 38. **4144**

A comment on the parliamentary announcement that the treatment of flour with agene in Gt. Britain is to cease on the 31st Dec. 1955.
—A.S.

RUTQUIST, L., BÖRNFORS, S. & BRAG, S. (1954). Några kliniska erfarenheter av experimentellt framkallad dicumarolförgiftning hos hund. **[Experimental dicoumarol poisoning in dogs.]**—*Nord. VetMed.* **6,** 423-433. [In Swedish. English and German summaries. Abst. from English summary. **4145**

Dogs developed fatal haemorrhage 5 days after being given a single dose of 30 mg. per kg. body wt. oxycoumarin by mouth. The most extensive haemorrhage was confined to the stomach and intestines, the subcutis, the pleural cavity, or the mediastinum. Intramuscular administration of the vitamin K analogue 2-methyl-1: 4-naphthalene tetrasodium diphosphate did not modify the increase in prothrombin time nor the extent of haemorrhage in poisoned dogs.—R.M.

TENNEKOON, G. E. (1954). **Pulmonary oedema due to thiosemicarbazide.**—*J. Path. Bact.* **67,** 341-347. [Author's summary modified.] **4146**

The rodenticide thiosemicarbazide induces acute pulmonary oedema when injected intraperitoneally into rats. Oedema is preceded by an increase in blood pressure and both are prevented by the administration of sympatholytic drugs, by transection of the spinal cord at the level of the first thoracic vertebra, and by depressants of the c.n.s. Anti-histamine drugs also inhibit or prevent pulmonary oedema. Thiosemicarbazide fails to produce oedema in perfused heart-lung preparations. T. suggested that pulmonary oedema due to thiosemicarbazide is the result of short-circuiting of the blood from vaso-constriction with increased blood flow through the lungs, and that it is, therefore, a hydrostatic oedema.

HOFFMAN, J., HIMES, M. B., LAPAN, S. & POST, J. (1955). **Responses of the liver to injury. Effects of cortisone upon acute carbon tetrachloride poisoning.**—*Arch. Path.* **60,** 10-18. [Authors' summary copied *verbatim.*] **4147**

Cortisone had a marked effect upon the healing of the hepatic lesion produced by acute CCl_4 injury. It reduced mitosis, inflammation, and nucleic acid synthesis. However, healing proceeded to completion without delay.

DEDIÉ, K., PALLASKE, G., MÜLLER, L. F., BEER, J. & MEYER, E. (1955). Die Hyperkeratose des Rindes in Mitteldeutschland. (Vorläufige Mitteilung). **[Hyperkeratosis in cattle in Central Germany. (Preliminary note).]**—*Mh. VetMed.* **10,** 88-89. **4148**

A description of symptoms of hyperkeratosis seen in cattle in Central Germany since August 1954. The cause of the disease was not determined.—A.S.

HOEKSTRA, W. G., HALL, R. E. & PHILLIPS, P. H. (1954). **A study on the relationship of vitamin A to the development of hyperkeratosis (X disease) in calves.**—*Amer. J. vet. Res.* **15,** 41-46. **4149**

The feeding of a hyperkeratosis-producing substance to calves led to severe depression of the vitamin A level in the plasma. When the vitamin A level was maintained by supplementation, which was possible provided that the hyperkeratosis-producing substance was not administered in quantities above a certain level, the chance of recovery was good. Otherwise the course of the disease was fatal. The authors considered that the depressant action of the substance on the vitamin A level was the most important factor in pathogenesis. They discussed possible mechanisms.—A.S.

CHAVAZ, G. (1954). Altérations de l'électrocardiogramme du chien sous l'influence de certains médicaments (en particulier la digitale et l'ouabaïne). **[Changes in the electrocardiogram of the dog following administration of digitalin or ouabain (a glycoside obtained from *Strophanthus gratus*).]**—*Rev. Cps vét. Armée.* **1,** 18-25. **4150**

Recordings were made at 15-min. intervals for 3 hours following administration of 50 mg. digitalin i/m (daily for 367 days) or 2.5-5 mg. i/m of ouabain for 5-13 days. The changes induced by ouabain were quicker to appear and more transient than those of digitalin. With both substances the rate was depressed, with lengthening of the PQ & ST intervals. The amplitude of the R wave increased but the P wave and length of the QRS complex were unchanged.

Extra systoles were occasioned by prolonged treatment or excessive dosage.—A. SEAMAN.

ECKELL, O. A., ANAYA, J. S. & PAULSEN, E. (1955). "Experiencias sobre la toxicidad de Robina pseudo-acacia" (Acacia blanca). **[Toxicity of *Robina pseudo-acacia* (black locust tree)].**—*Rev. Vet. Milit., B. Aires.* **3,** 56-67. **4151**

The black locust tree (*R. pseudo-acacia*) has been suspected to cause poisoning of horses in the Argentine and in view of the published records of toxicity the authors carried out toxicological tests. They were unable to produce marked toxic symptoms in g. pigs, rabbits, or horses given suspensions or watery infusions of bark and leaves *per os,* or by intravenous injections of watery solutions of the alcoholic extract of solutions of saponins and glucosides isolated from the tree.—H. E. HARBOUR.

BYWATER, H. E. (1955). **The toxicity of hexachloroethane.** [Correspondence.]—*Vet. Rec.* **67,** 382. **4152**

Deaths of adult cattle have occurred following administration of as little as a quarter of the therapeutic dose. The mortality is given as over 1%, occurring in animals on a low nutritional plane but without severe liver damage.

—A. SEAMAN.

SUTHERLAND, A. K., MOULE, G. R. & HARVEY, J. M. (1955). **On the toxicity of copper aminoacetate injection and copper sulphate drench for sheep.**—*Aust. vet. J.* **31,** 141-145. [Authors' summary copied *verbatim.*] **4153**

Two experiments are described in which copper aminoacetate (copper glycinate) was injected subcutaneously into sheep. Beyond transitory lameness and local lesions of moderate severity, no evidence of toxicity was observed with dose rates of 1.1 mg. Cu per kg. Some deaths occurred amongst young sheep when the dose rate reached about 1.8 mg. Cu per kg.

The oral administration of 3.5% solution of copper sulphate in doses of 2 fluid ounces was fatal to two and probably four sheep, while doses of 1½ fluid ounces were followed by severe and persistent diarrhoea in two of ten sheep of about 56 lb. liveweight.

See also absts. **4104** (toxicity of urea); **4204** (report, Australia).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

CALVERT, R. J. & SMITH, E. (1955). **Penicillin anaphylactoid shock.**—*Brit. med. J.* July 30th, 302-305. **4154**

A case report of a patient who developed moderately severe reaction after taking a penicillin lozenge, and later suffered severe shock after i/m injection. He had had no previous contact with penicillin. The authors discussed penicillin shock reactions and prophylactic measures.—A.S.

EIKMEIER, H. (1955). Das Cortison in der Augenheilkunde. **[Cortisone in eye diseases.]** —*Berl. Münch. tierärztl. Wschr.* **68,** 83-85. [No. 7.] 110-113. [English summary.] **4155**

E. discussed the usefulness of cortisone in eye conditions, concluding that it was suitable for the symptomatic treatment of oedema, exudation, excessive tissue formation, and increased permeability of the blood vessels.—A.S.

See also absts. **3904** (oxytetracycline in mastitis); **3912, 3914 & 3915** (TB.); **3819** (gangrenous mastitis); **3925** (arthritis in pigs); **3927** (aureomycin in mink erysipelas); **3944** (terramycin and ring test); **3954** (effect of terramycin on agglutinin titres); **3978** (vibrionic dysentery in pigs); **3995-3996** (trypanosomiasis); **3997** (trichomoniasis); **4002** (enheptin); **4004** (avian malaria); **4033** (bovine granular vulvo-vaginitis); **4044** (lachesis in distemper); **4051** (psittacosis); **4061** (repellents); **4062** (malathion); **4065-4068, 4070-4072 & 4074-4075** (insecticides); **4077, 4082 & 4087-4088** (anthelmintics); **4106** (effect of antiseptics on ruminal fermentation); **4107** (antibiotic supplements for pigs); **4108** (sulphaquinoxaline); **4174** (meat of cattle treated with thiobarbiturates); **4177** (methyl bromide for sterilizing poultry litter).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

NIKOL'SKI, N. M. (1954). **[Protective qualities of unpigmented skin of farm animals in the far North.]**—*Veterinariya, Moscow.* **31,** No. 12, pp. 36-37. [In Russian.] **4156**

In 1954, Savtchik published a study on furunculosis in horses in polar regions. This, in his opinion, was due to vitamin deficiency, and was found more often in dark coloured horses. While N. appreciated the importance of studying the nutritive characteristics of the Northern pastures, he maintained that, in cases of furunculosis, it is necessary to inquire into the conditions under which the horses are kept, and emphasized the need for bathing and washing.

—A. MAYR-HARTING.

I. ANDJUS, R. K. & SMITH, A. U. (1955). **Reanimation of adult rats from body temperatures between 0 and +2°C.**—*J. Physiol.* **128**, 446-472. **4157**

II. ANDJUS, R. K. & LOVELOCK, J. E. (1955). **Reanimation of rats from body temperatures between 0 and 1°C by microwave diathermy.** —*Ibid.* 547-556. **4158**

III. ANDJUS, R. K. (1955). **Suspended animation in cooled, supercooled and frozen rats.** —*Ibid.* 541-546. **4159**

I. Rats were kept in closed jars in a refrigerator until they were drowsy, and then transferred to a water/ice mixture until their colonic temperatures were in the range 0° to 2°C. They were then resuscitated by stages. The heart region was warmed until the heart began to beat, and air was insufflated into the lungs until normal breathing began. They were then transferred to a water bath at 37°C. until reflexes returned, after which they were dried and transferred to an incubator at 28° to 32°C. until recovery was complete. The method of heating the heart region was important. When a warm spatula was used only 20% recovered, as compared with 75% when a beam of strong light was used. The authors discussed previous work on resuscitation following refrigeration by whole-body immersion or venous cooling. They pointed out that an advantage of their method was that it did not produce the prolonged anoxia of the surface tissues which was unavoidable with whole-body warming methods which restored these tissues to activity before circulation resumed.

II. The authors repeated experiments as described above, with the exception that to avoid superficial burning, the heart region was warmed by short-wave irradiation. They achieved 80-100% recovery with this method.

III. The author reported work on (a) the max. time during which rats could be cooled and still remain capable of recovery; (b) repeated cooling of individual animals; and (c) resuscitation from temperatures below zero. Whereas 10 out of 10 rats could be revived after 60-70 min. at 0°C., only one out of 10 could be revived after 110-120 min., and this died before it had completely recovered. Rats could be repeatedly cooled to 0°C. and revived. If this was done with short intervals, *e.g.* on alternate days, there was considerable loss of wt. When they were given sufficient time after each cooling to recover their original wt. it was found that the interval required grew less with successive coolings until it reached a constant level. This was taken as evidence of adaptive change, as was also the observation that rats cooled a number of times revived more readily and did not need such care as those being revived for the first time. Rats could be revived after cooling to -3°C.—A.S.

ROMIJN, C. & LOKHORST, W. (1955). **Chemical heat regulation in the chick embryo.**—*Poult. Sci.* **34**, 649-654. [Authors' summary modified.] **4160**

A technique was described for continuous recording of the respiratory metabolism and the temperature of the incubated egg. The chick embryo shows a poikilothermic reaction to changes in environmental temp. till the moment of hatching. In the full term embryo there are certain indications of developing homoeothermia, notably a considerable rise of the respiratory quotient during cooling over a range of at least 10°C.

In the newly hatched chick the body temp. shows only small fluctuations after cooling or heating over a range of 3°C. owing to the homoeothermic regulation of the heat production.

In week-old chicks the constancy of body temp. is much better established, even at changes in environmental temp, of 10°C.

WASSERMANN, F. (1954). **Fibrillogenesis in the regenerating rat tendon with special reference to growth and composition of the collagenous fibril.**—*Amer. J. Anat.* **94**, 399-437. **4161**

Electron microscopic studies suggest that regeneration is the immediate responsibility of the primary and not the collagenous fibril, also that intra- as well as extra-cellular activity must be considered. Thirty electron micrographs illustrate.—C. W. OTTAWAY.

BALCH, C. C. (1955). **Sleep in ruminants.** [Correspondence.]—*Nature, Lond.* **175**, 940-941. **4162**

By using a kymograph to record pressure changes in the reticulum of fistulated cows, B. was able to make continuous recordings showing the respiration rate, reticulo-ruminal motility, and whether the animals were standing, ruminating while lying, or resting. He also watched the cows at night. From his own observations and those of other workers with whom he has been in correspondence he considers that sleep in healthy adult cattle and sheep, if it occurs at all, is of a very light transient nature. This may be because the reticulo-rumen only functions properly in an upright thorax, and because the animal must be conscious in order to ruminate. —A.S.

TURNER, H. G. (1955). **The effect of unequal intervals between milkings upon milk production and diurnal variation in milk secretion.**—*Aust. J. agric. Res.* **6**, 530-538. [Author's summary modified.] **4163**

Five pairs of twin heifers were milked twice daily at intervals of either 11 and 13 hours or 8 and 16 hours for a period of 16 weeks. Total milk and fat production were recorded, and, from determinations of residual milk, secretion rates during each interval were estimated. Total milk production was slightly, but not significantly, higher in the group milked at unequal intervals. It was estimated that any depression of production due to milking at intervals even as widely disparate as these is likely to be very small. Fat percentage was unaffected. Evidence of diurnal variation in milk or fat secretion under the influence of a schedule of 8- and 16-hour intervals was not conclusive, but overall there was no significant evidence that secretion rates were lower during the longer interval.

HOITINK, A. W. J. H. (1954). Haematologische onderzoekingen bij zebus. **[Haematological investigations in zebu cattle.]**—*Tijdschr. Diergeneesk.* **79**, 812-821. [English, French and German summaries.] **4164**

An account of haematological studies on 5 healthy zebu cattle in Indonesia. The blood picture differed from that of European cattle, in that the haemoglobin value and erythrocyte counts were somewhat higher and the thrombocyte count and the erythrocyte sedimentation rate were lower. The findings were given in a table with captions in English.

—C. A. VAN DORSSEN.

MUIR, A. R. (1954). **The development of the ventricular part of the conducting tissue in the heart of the sheep.**—*J. Anat., Lond.* **88**, 381-391. **4165**

In a study of an extensive series of hearts of sheep foetuses the common trunk of the atrioventricular bundle was found to differentiate from the dorsal wall of the atrial canal. The node can be seen soon after (11 mm.) and is continuous with both bundle and muscle. The branches and terminal network are formed by differentiation extending from the trunk. Purkinje fibres are the result of late differentiation of mesenchymal cells which have previously followed normal myocardial development.—A. SEAMAN.

LEE, J. S. (1954). **Intravascular hemolysis during water absorption from small intestine.** —*Amer. J. Physiol.* **178**, 103-110. **4166**

When 20 ml./kg. of water was introduced into the duodenum of rats and cats the plasma haemoglobin level in the portal vein rose. No effect was seen in rabbits with lower doses than 60 ml./kg. and in dogs the level increased until lavage with cold water at 150 ml./min. was used.

—A. SEAMAN.

GARNER, R. J. (1955). **Bile pigment metabolism in cattle. Bile pigments in ox bile, intestinal contents, and faeces.** — *J. comp. Path.* **65**, 271-277. [Authors conclusions copied *verbatim.*] **4167**

Fresh ox bile normally contains bilirubin, coproporphyrin, protoporphyrin and stercobilin; it may not always contain biliverdin. The presence of bilirubin, but not of biliverdin, has been demonstrated in intestinal contents. The only bile pigment to be identified unequivocally in ox faeces is stercobilin. It is concluded that the fate of the bile pigments in cattle is essentially similar to that in man.

BELL, F. R. & LAWN, A. M. (1955). **Localization of regions in the medulla oblongata of sheep associated with rumination.** — *J. Physiol.* **128**, 577-592. **4168**

An account of experiments on 19 sheep to determine the regions of the medulla, electrical stimulation of which resulted in contractions of the oesophagus, rumen and reticulum.

—C. C. BANNATYNE.

COHRS, P. & SCHULZ, L. C. (1954). Artspezifische Hypertrophie des Kleinhirnwurms bei Säugetieren, verbunden mit partiellen Rindenaplasien. **[Hypertrophy of the vermis and partial cortical aplasia of the cerebellum in mammals.]**—*Anat. Anz.* **101**, 23-36. **4169**

Following a study of cerebellar aplasia in wild and domestic pigs [*V.B.* **25**, 2182] the authors described hypertrophy and partial cortical aplasia of the tuber vermis in the cerebellum of cattle, horses, sheep, deer, elephants, cats, dogs, monkeys, a seal, a lion and a kangaroo. No lesions were discernible in material from various species of rodents.—E.G.

BRAKHAGE, A. (1954). Über Melanose des Uterus beim Schaf. **[Melanosis of the uterus in sheep.]**—*Inaug. Diss., Hanover.* pp. 15. **4170**

Melanosis of the uterine mucosa was found in 48 of 195 white-faced sheep, but in all of 81 black-faced sheep. In the former, the pigment was usually confined to the cotyledons or just around them, whereas in the latter, the pigment-

ation tended to be more intense, and affected the intercaruncular mucosa as well. The oviducts always showed pigmentation if the uterus did: in the latter organ, the pigment was in the lamina propria, but in the former, in the tunica muscularis. The pigmentation became more frequent in the 2½—3-year age group.

—E. COTCHIN.

REYNOLDS, S. R. M., PAUL, W. M. & HUGGETT, A. St. G. (1954). **Physiological study of the monkey fetus *in utero*: a procedure for blood pressure recording, blood sampling, and injection of the fetus under normal conditions.** —*Johns Hopk. Hosp. Bull.* **95**, 256-268. [Abst. from authors' summary.] **4171**

A method of catheterization of the vascular system with the foetus *in utero* and the amnion intact is described. It involves the insertion of a polyethylene tube into an interplacental artery of the monkey as it passes between primary and secondary placentas. It is applicable to animals having two or more discrete placental structures.

Experiments with ^{12}C and ^{14}C glucose and fructose have been carried out in which injections have been made into the mother and foetus, followed by frequent sampling of maternal (placental) and foetal blood. These experiments will be reported in separate publications.

EVANS, J. V. & KING, J. W. B. (1955). **Genetic control of sodium and potassium concentrations in the red blood cells of sheep.** [Correspondence.] — *Nature, Lond.* **176**, 171. **4172**

Fifteen rams, ewes and their progeny were divided into two groups according to the potassium content of their r.b.c. The results suggest that high potassium content is an inherited recessive character.—JOHN SEAMER.

NONIDEZ, J. F. [Late Professor of Anatomy, Cornell University.] & WINDLE, W. F. [Scientific Director, Baxter Laboratories, Inc.] (1953). **Textbook of histology.** pp. xv+528. London: McGraw-Hill Publishing Co., Ltd. 2nd Edit. 76s. **4173**

This is a sound elementary textbook consisting of a systematic description of the body tissues, with clear black-and-white illustrations.

—A.S.

See also absts. **4106** (ruminal fermentation); **4111** (ruminal ammonia formation); **4189** (body cooling and overheating in buffaloes, sheep and goats); **4219** (textbook of physiology); **4220** (book, physiology of farm animals); **4221** (textbook of physiological chemistry); **4222** (annual review of biochemistry).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

HENNEBERG, O. H., WEIS, W., BENEDIKT, K., PUNTIGAM, F. & BERGER, K. (1955). Ist das Fleisch von Tieren nach intravenöser Verabfolgung von Thiobarbituraten zum menschlichen Genuss tauglich? **[Suitability for human consumption of meat from animals injected intravenously with thiobarbiturates before slaughter.]** —*Arch. Lebensmittelhyg.* **6**, 49-51. **4174**

The authors examined the distribution of thiopental in the organs of young cattle killed at various intervals after injection. They concluded that there was no objection to the sale of the meat and viscera of cattle injected with the drug.—A.S.

THIÉRY, J. P. (1955). Les nouveaux aménagements du service des diagnostics au laboratoire central de recherches vétérinaires d'Alfort. **[New organizations of the diagnostic services at the Central Veterinary Research Laboratory, Alfort.]**—*Cah. Méd. vét.* **24**, 1-7. **4175**

A note on the Central Veterinary Research Laboratory at Alfort, with a description of buildings recently added.—A.S.

See also absts. **3935** (coliform organisms in drinking water); **3940** (salmonellosis in rats in a butcher's byproducts factory); **3949** (brucellosis in veterinarians); **4049** (Newcastle disease in man); **4050** (psittacosis); **4079** (echinococcus).

LIVESTOCK HYGIENE

FLÜCKIGER, G. & BUHL. (1954). Désinfection des wagons de chemin de fer et véhicules routiers destinés au transport des animaux. **[Disinfection of railway waggons and lorries used for transport of livestock.]**—*Bull. Off. int. Epiz.* **42**, May, pp. 386-394. [English summary.] **4176**

The authors discussed the methods used in various countries for the disinfection of transport vehicles used for livestock. Eight countries use caustic soda (1-5%); 7 use washing soda (sodium carbonate) (2-5%); 7, hypochlorite or chlorine products; 8, cresols, phenols or related compounds; 4, formaldehyde (2-3%); in 7 other the use of formaldehyde is being investigated. Railway waggons and especially road vehicles

should be disinfected within 40 hours after the animals have been unloaded. Owing to the variety of means of disinfection some international requirements should be laid down and, on financial grounds, further work on the prospective use of formaldehyde would be worthwhile.

—MALCOLM WOODBINE.

EDGAR, S. A. & KING, D. F. (1955). **The effectiveness of methyl bromide in sterilizing poultry litter.**—*Poult. Sci.* **34**, 595-597. [Authors' summary and conclusions modified.] **4177**

The authors concluded that *Aspergillus fumigatus* on agar, *Ascaridia galli* eggs in a small amount of water and *Eimeria tenella* oocysts in a small amount of water are killed by methyl bromide gas when used at the rate of 1 ml. liquefied gas per quart of space or at 1 lb. per 100 square ft. of floor space. Further experimentation may prove that a much lower conc. would be practical under commercial conditions.

See also absts. **3908** (disinfection of cattle manure); **3942** (survival of S. gallinarum in faeces); **4064** (fly control in barns); **4223** (textbook of veterinary hygiene).

REPRODUCTION AND REPRODUCTIVE DISORDERS

BAIER, W., LEIDL, W., MAHRLA, A. & SCHRÖDL, M. (1955). Über das Pyocyaneum-Problem in der künstlichen Besamung. **[*Pseudomonas pyocyanea* and artificial insemination.]**—*Berl. Münch. tierärztl. Wschr.* **68**, 141-143; 157-159. [English summary.] **4178**

Experimental infection of two bulls by injection of *Ps. pyocyanea* into the epididymis and study of the conception rate of 18 infected bulls in an artificial insemination centre indicated that while the organism spread from bull to bull it did not affect fertility. Other observations suggested that the organism had a slight effect on the conception rate. Polymyxin is an effective antibiotic against *Ps. pyocyanea*.—HUGH BOYD.

PÉREZ Y PÉREZ, F. (1953). Investigaciones sobre la influencia que en la vitalidad del esperma de garañón tienen las diferencias le PH entre el material seminal y el disolvente. **[Influence of difference in pH between semen and its diluent on the viability of donkey spermatozoa.]**—*An. Inst. Invest. vet., Madrid.* **5**, 11-20. [English and German summaries.] **4179**

When donkey semen is collected in the artificial vagina (a.v.) the spermatozoa undergo "ionic shock" at the moment of mixing with the other components of the semen. This results in loss of motility in a proportion of the spermatozoa. If a buffer solution at the same pH as the spermatozoa is placed in the a.v. before semen is collected, the life of the spermatozoa is prolonged by 6-8 hours.—A.S.

RIECK, G. W. & KRATZHELLER, K. (1955). Zytologie des desquamierenden Vaginalepithels der Hündin und ihre Anwendung für die Zyklusdiagnostik. **[Cytology of vaginal smears from the bitch, and its use in determining the stage of the oestrous cycle.]**—*Zbl. VetMed.* **2**, 82-101. [English, French and Spanish summaries.] **4180**

The object of the investigation was to determine the time of ovulation by study of the cells in vaginal smears. Ten sexually mature bitches of varying ages and breeds were examined through one or two complete cycles, including in some cases pregnancy. Although it was possible to determine the stage of the cycle from the cell pictures, which are described in detail, and from clin. observations, it was not possible to determine the time of ovulation.—HUGH BOYD.

WATSON, R. H. & RADFORD, H. M. (1955). **A note on the hours of daylight associated with the seasonal increase in sexual activity in Merino ewes.**—*Aust. vet. J.* **31**, 31-32. **4181**

Data from a small number of sheep indicate that on some occasions the incidence of oestrus in Merino ewes, at a low level in September and October, begins to rise in November and December. This onset of oestrus occurs before the longest day and it is suggested that the effective light-dark régime is different from that which controls some British breeds of sheep in which oestrus begins some 2-4 months after the longest day.—A. W. BLACKSHAW.

HARTWIGK, H. & THUMANN, E. (1955). Untersuchungen über die puerperale Septikämie des Schweines. **[Puerperal septicaemia in pigs.]**—*Tierärztl. Umsch.* **10**, 126-130. **4182**

Puerperal septicaemia of pigs is characterized by mastitis, agalactia, vaginal discharge and pyrexia; it is sometimes fatal. Mastitis and agalactia may cause mortality among the piglets.

Non-specific secondary infections are thought to be the cause. Antibiotic treatment is usually successful.—W. G. SILLER.

I. GÜNTHER, S. (1954). Klinische Beobachtungen über die Geburtsfunktion bei der Katze. [**Clinical observations on parturition in the cat.**]—*Arch. exp. VetMed.* **8**, 739-743. **4183**

II. GÜNTHER, S. (1954). Experimentelle Untersuchungen über die Geburtsfunktion bei der Katze. [**Experimental study of parturition in the cat.**]—*Ibid.* 744-747. **4184**

III. GÜNTHER, S. (1954). Klinische Beobachtungen über die Geburtsfunktion bei der Hündin. [**Clinical observations on parturi- in the bitch.**]—*Ibid.* 748-752. **4185**

I & II. Hysterectomy and P.M. examination of 16 cats with abnormal parturition and 23 experimental, normal cats killed during partus showed that, in the cat, when there is uneven distribution of the foetuses in the uterine horns the first to be expelled is from the uterine horn with the greater number of foetuses and that the first three young are born from alternate horns. When the foetuses were distributed evenly in both horns it was not clear what determined which should be born first.

III. Similar conclusions applied to 39 bitches with abnormal parturition. Fourteen of the 39 were examined P.M.—HUGH BOYD.

BRUS, D. H. J. (1954). Biopsia uteri haar betekenis bij de studie naar de oorzaken der steriliteit van het rund. [**Biopsy of the uterus of cows.**]—*Thesis, Utrecht.* pp. 191. [English and French summaries.] **4186**

Uterine biopsy samples from 221 cows were examined histologically. Inflammation was present without clinical signs in 63% of the sterile cows examined. Slight inflammation, with small numbers of leucocytes only, did not prevent conception. Taking a biopsy specimen from one horn of the uterus did not prevent conception when done a few min. after the other horn had been artificially inseminated.

—C. A. VAN DORSSEN.

MOTOHASHI, H. (1954). [**On twenty-six cases of syndactylous anomaly in the Nipponese improved cattle.**]—*Tottori Soc. agric. Sci.* **10**, 212-236. [In Japanese. Abst. from English summary.] **4187**

In 26 calves with syndactylism, the commonest combinations of limbs affected were both forelimbs (14 calves) and all four limbs (6 calves). Affected calves were poorly developed and had difficulty in walking; none of them survived for more than 5 months. The condition was due to a recessive gene, not sex-linked.—R.M.

SAILER, J. (1955). Epitheliogenesis imperfekta neonatorum beim Schwein. [**Imperfect epithelium formation—a hereditary defect in pigs.**]—*Tierärztl. Umsch.* **10**, 215-216. **4188**

In three litters by the same boar out of different sows about a quarter of the piglets had skinless patches on the flanks, back and elsewhere. Most died, but some survived, developing hairless skin over the affected parts.—A.S.

See also absts. **3937** (equine paratyphoid); **3977** (transmission of V. fetus by A.I.); **3980** (reproductive failures in livestock); **4013** (foetal mortality in swine caused by Aujeszky's disease); **4012** (effect of certain plants on fertility on laboratory animals); **4204** (report, Australia).

ZOOTECHNY

MINETT, F. C. (1955). **Experiments on body-cooling and body-overheating in buffaloes, sheep and goats in India.**—*J. comp. Path.* **65**, 197-219. [Author's conclusions modified.] **4189**

Experiments are described showing the effects of body cooling and body overheating in sheep, buffaloes and goats. Results were analysed statistically.

In clipped sheep, body temperature followed a lower course for a time, but after 20 days rose to that of unclipped animals. Both buffaloes and goats exposed to strong winds showed lower temperatures than sheltered groups. Temperatures were significantly higher in buffaloes standing in hot sun than in those kept in the shade, irrespective of whether water was withheld or whether the body surface was wetted.

Small goats could not withstand the effects of heat as well as large ones, and under cooling conditions they showed a greater fall in temperature. The colour of the coat affected the rise in temperature under sunlight but did not affect heat loss under cooling conditions.

In sheep, the results were less conclusive, suggesting that they were relatively tolerant to hot atmospheres. Black sheep showed a significantly greater temperature rise on exposure to the sun than did white sheep.

GILLAIN, J. (1955). Introduction au Congo belge du buffle d'eau originaire du Pakistan.

[Milk production and growth rate of buffaloes introduced into the Belgian Congo from Pakistan.]—*Bull. Inform. INEAC.* **4**, 27-34. [In French.] [Published in *Bull. agric. Congo belge.* **46**, No. 1] **4190**

G. described the progress made by buffaloes imported from Pakistan and kept on good pasture with supplements. Milk production and calf weight gains compared favourably with those of indigenous and imported European cattle. He advocated the used of the breed in the Congo, but only where good feed was available.—A.S.

PETROV, G., DENOVSKI, D. & ANTONOV, S. (1954). **[Effect of the microclimate on the development of new-born piglets.]**—*Izv. Inst. eksp. vet. Med., Sofia.* **3**, pp. 201-210. [In Bulgarian. German and Russian summaries. Abst. from German summary.] **4191**

The authors found that optimum growth and the minimum of disease occurred in piglets kept in an atmosphere containing not more than 0.02 mg. ammonia per l., 6 mg. CO_2 per l. and 0.015 mg. SO_2 per l., at a relative humidity of up to 80% and a temperature above 8°C.—R.M.

ANON. (1954). Electrischebedwelming van slachtdieren. Rapport van de Commissie A II van de Dierenbeschermings-adviesraad der Nederlandsche Vereeniging tot Bescherming van Dieren, inzake *electrische bedwelming.* **[Electrical stunning of slaughter animals. Report of a committee of the Netherlands Society for the Protection of Animals.]** —*Tijdschr. Diergeneesk.* **79**, 373-382. **4192**

The committee consisted of abattoir technicians assisted by a physiologist, a medical psychiatrist and an electrical engineer. An inquiry about the practical use of electrical stunning in abattoirs was held and the observations made on animals were compared with the sensations observed in therapeutically shocked human patients. It was concluded that conduction of electrical current through the skull is an acceptable method for the stunning of slaughter animals. Two systems were recommended:— (a) the application of a large dose of electrical energy over a short period; (b) the method by which smaller doses of electricity per time unit are applied over a longer period.

—C. A. VAN DORSSEN.

SASSOON, S. D. (1955). **A critical study of electrical stunning and the Jewish method of slaughter (Shechita).** pp. 40. Letchworth: The Author. **4193**

This booklet considers the permissibility and desirability of electrical stunning as a preliminary to Jewish ritual slaughter of cows and sheep for meat production (shechita). The process of shechita is described, with special emphasis on the humanitarian aspect, and in particular on the rapid loss of consciousness following the throat-cut. This procedure is compared with electric stunning and stress is laid on the dangers of "curarization" and missed shock.

The religious problems of accidental death during electrical stunning, and of incomplete bleeding out are discussed. Problems associated with meat inspection of electrically stunned animals are enumerated; these are mainly concerned with the keeping quality of the meat, and with the detection of "splash". The booklet consists mainly of quotations from scientific papers by other authors; some of these papers were written more than 30 years ago.

[The author's title 'A Critical Study' is misleading since the booklet has a strong bias against electrical stunning. Many of the papers quoted have been superseded during the last 10 years by reports from scientists equipped with more sensitive apparatus. Moreover some statements have been taken out of their context so that the author's original meaning has not been preserved.]—PHYLLIS G. CROFT.

ANDERSEN, A. C. & HART, G. H. (1955). **Kennel construction and management in relation to longevity studies in the dog.** — *J. Amer. vet. med. Ass.* **126**, 366-373. **4194**

An account of the design and management of kennels housing 400 beagles, used for the study of longevity. There are 168 experimental pens, each 13 × 29 ft. in size, and each holding 2 bitches. They have a gravel surface and two wooden barrels, on a raised platform, for housing; no bedding is placed in these kennels. The pens are separated by a wire fence 5 ft. high. In addition to the experimental pens there are breeding and puppy pens within the same compound. Replacements for dogs in the experimental pens are bred on the premises and are vaccinated against distemper and canine virus hepatitis before being placed in the pens. The vocal chords are surgically removed to overcome the problem of barking. No attempt is made to keep the dogs free from helminths, but clinical infestation has not occurred. An outbreak of distemper affected only 15 dogs, 11 of which died. Details are given of nutrition and behaviour. Regarding personnel, one man is required to look after every 52 dogs.—R.M.

ENGLAND, D. C., WINTERS, L. M. & CARPENTER, L. E. (1954). **The development of a breed of miniature swine—a preliminary report.**—*Growth.* **18**, 207-214. **4195**

The authors reported on the development by inbreeding and selection of an anatomically and physiologically normal breed of miniature pig for laboratory research. Third generation pigs averaged 43 lb. at 154 days of age.—E.G.

DUN, R. B. (1955). **Ageing the Merino foetus.**—*Aust. vet. J.* **31**, 153-154. [Author's summary modified.] **4196**

A foetal growth curve for Peppin Merino sheep is presented. The foetal measurement used was body length from a line joining the medial canthi of the eyes to the tail tip. In 39 of the 43 cases described, use of the growth curve gave a predicted age within 2 days of the known correct age.

TECHNIQUE AND APPARATUS

BEAMER, P. R. & FIRMINGER, H. I. (1955). **Improved methods for demonstrating acid-fast and spirochetal organisms in histologic sections.**—*Lab. Invest.* **4**, 9-17. **4197**

The authors described a fuchsin-formaldehyde staining method for the demonstration of *Mycobact. tuberculosis* and *M. leprae* in paraffin sections, stated to be superior to the modifications of the Ziehl-Neelsen technique in use. A silver impregnation method for the demonstration of *Leptospira icterohaemorrhagiae* and *Treponema pallidum* in paraffin sections was also described in detail.—E.G.

DAKIN, E. S. (1955). **Improved adhesion and visibility of cytologic preparations by use of the frosted glass slide.**—*Science.* **121**, 474-475. **4198**

Slides frosted on one side to 150-emery grain give good adhesion of sections without the use of egg albumen, and appear clear when covered by mounting media or immersion oil. When the slides are frosted on both sides light diffusion cuts down glare.—A. SEAMAN.

BARBER, R. [University Demonstrator in Anatomy, University of Oxford]. (1953). **Lecture notes on the use of the microscope.** pp. vii+76. Oxford: Blackwell Scientific Publications; (Springfield, Ill: Charles C. Thomas). 6s. **4199**

Probably the majority of workers in the biological field frequently use a microscope without having received any training or instruction. Good results are therefore often a matter of experience or luck.

This book aims to fulfil what must be a widely felt need for it provides in a very short compass—a matter of about 3 hours' reading—an adequate account of the modern microscope and reasoned instructions for its use. The account is made extremely readable by the inclusion of sufficient theoretical detail to provide a logical basis for the practical instructions, without advancing into the realm of advanced physics. The appendix includes an account of Köhler illumination which is particularly useful because many laboratories are equipped with "research type" lamps and this system is replacing critical illumination.—L. P. JOYNER.

BORYSKO, E. & SAPRANANSKAS, P. (1954.) **A new tehnique for comparative phase-contrast and electron microscope studies of cells grown in tissue culture, with an evaluation of the technique by means of time-lapse cinemicrographs.**—*Johns Hopk. Hosp. Bull.* **95**, 68-79. [Authors' summary copied *verbatim.*] **4200**

A technique was developed for embedding whole colonies of tissue culture cells in methacrylate while they remained attached to the glass substrate on which they had grown. Electron micrographs of thin sections of the colonies illustrate the effectiveness of the technique.

A time-lapse, phase-contrast cinemicrographic study of the preparation of cells for sectioning, using osmic acid fixation, ethanol dehydration and methacrylate embedding, indicated that artifacts resolvable in the optical microscope were not produced at any stage of the process.

SHUTE, P. G. (1955). **An improved technique for staining blood films with Giemsa stain.** [Correspondence.] — *Nature, Lond.* **175**, 727. **4201**

By using normal saline to dilute the stain and increasing the staining time to 30 min., only the parasitized cells are shown, sharply stained on a clean background.—A. SEAMAN.

COHEN, C. (1955). **A method for bleeding rabbits.**—*Amer. J. clin. Path.* **25**, 604. **4202**

More than 50 ml. of blood can be obtained from the median artery of the ear by using a

commercial vacuum container fitted to a 25 gauge needle. [C. does not comment on the occasional difficulty of stopping the flow.]—A. SEAMAN.

BANKS, W. C. (1954). **A "quick-freeze" immobilizer for animals.**—*N. Amer. Vet.* **35**, 929-931. **4203**

The "flexicast" immobilizer consists of a thin-walled rubber bag filled with small plastic granules and connected to a vacuum pump. When some of the air is drawn out the plastic becomes soft and can be easily moulded over any part of the body. Further extraction of air after the bag has been shaped will harden the plastic and completely immobilize the part without causing pain or "grave" discomfort to the patient. The release mechanism consists of letting air in again, when the plastic becomes soft again. B. considers this apparatus useful in small-animal practice for diagnostic and therapeutic readiology, minor surgery and physical examination.—T.E.G.R.

See also absts. **3946** (cultivation of Brucella from cream); **3948** (isolation and growth of Brucella); **3956** (agglutinin absorption and production of type-specific Brucella sera); **3967** (electron microscopy of Leptospira); **4010** (differentiation between F. & M. disease and vesicular stomatitis and vesicular exanthema); **4015** (laboratory techniques in rabies); **4186** (biopsy of the bovine uterus).

REPORTS

AUSTRALIA. (1953). **New South Wales. Department of Agriculture. Annual report 1951-52.** [NOBLE, R. J.] pp.75 [Report of Division of Animal Industry, HINDMARSH, W. L., pp. 31-42.] **4204**

Avian type *TB.* was found in a wild duck. *Erysipelothrix* (*Listeria*) *monocytogenes* was isolated from fowls for the first time in Australia. Field evidence, not yet confirmed in the laboratory, suggests that GLASSER'S DISEASE is present in pigs. While vaccination effectively immunizes sheep against ENTEROTOXAEMIA, goats require repeated vaccinations.

The strain of *Brucella abortus* which has been used for many years as antigen for the agglutination test proved unsatisfactory for the milk ring test. Strain 19 was used successfully. Severe mortality in sheep after eating rabbit carcasses (dead from MYXOMATOSIS) was thought to be due to BOTULISM, but the organism could not be isolated from the carcasses. In the diagnosis of LEPTOSPIROSIS urine specimens are generally unsatisfactory because the organism is not excreted in large numbers for some days after the appearance of haemoglobinuria and can disappear rapidly unless urine is preserved immediately with 0.5% formalin. Examination of sections and g. pig inoculation are satisfactory.

Research work was continued on TRICHOMONIASIS. Culture media as aids to diagnosis are under investigation. A normal calf was born to a cow that had been experimentally infected 2½ months after service. Trichomonads were detected in the vagina three days after infection but did not persist and did not penetrate the vaginal plug.

Some 250,000 doses of MYXOMATOSIS virus for infection of rabbits in the field gave useful control of the population. Studies on the viability of the virus in glycerol phosphate buffer solutions, which had previously proved satisfactory, showed that the glycerol at present available has viricidal properties, and may kill the virus within a few days. The virus is now issued in the dried form which retains its viability for at least a year if kept in a refrigerator. Once the virus is suspended in water it deteriorates rapidly and may be non-infective in less than two days at room temperature. Dried virus deteriorated rapidly at high temperatures and became non-infective within 3 days at 100°F.

"Fogging" with D.D.T. or benzene hexachloride (B.H.C.) was not as effective as dipping in the control of LOUSE AND KED INFESTATIONS in sheep. Infestations with *Psorergates ovis* (itch mite) were extensive in sheep in plateau areas. B.H.C. dips had little effect on the mites. There was a heavy incidence of BLOWFLY STRIKE. D.D.T. and B.H.C. are being used more widely for control of body and crutch strike. Arsenic-resistant strains of *Boophilus microplus* appeared in some areas.

In cattle outbreaks of FASCIOLIASIS and PARAMPHISTOMIASIS were recorded in north coast regions. Investigations on SPARGANOSIS in wild pigs were carried out. A pig was experimentally infected by drenching with tadpoles harbouring the plerocercoid stage of *Diphyllobothrium erinacei.* Limited experiments on administration of water fleas infested with the procercoid stage or with spargana from another pig were not successful. In regions where there was a high incidence of SPARGANOSIS in wild pigs, foxes were heavily infested with *D. erinacei.* If infected pig carcasses are kept in the freezing chamber for a week the spargana become non-infective.

Nutritional investigations included toxicity of grain sorghum and linseed meal for chickens, drought feeding, antibiotic supplements, synthetic

replacement of vitamin B complex in rations for fowls and possible anti-vitamin D activity of green oats.

In winter milk-producing areas, MINERAL IMBALANCE is of economic importance in dairy cows. Sheep showed the same eosinopenic response to adrenal cortical stimulation as other animals. A marked difference has been noted between adrenal cortical activity during fasting in non-pregnant sheep and in advanced pregnancy, thus supporting the hypothesis of adrenal cortical involvement in PREGNANCY TOXAEMIA. An experimental case did not respond to cortisone.

There were numerous LOSSES FROM POISON PLANTS. Bracken Fern was responsible for most losses in dairy cattle. In beef cattle Mint Weed (*Salvia reflexa*) Broom Millet (*Sorghum dochna*), Variegated Thistle (*Silybum marianum*) and Crown Beard (*Verbesina encelioides*) were responsible. Deaths in sheep resulted from feeding on Rock Fern (*Cheilanthes tenuifolia*), Nardoo (*Marsilea drummondii*) and Blue Couch (*Cynodon incompletus*). PHOTOSENSITIZATION was reported in cattle after eating Lantana (*Lantana camara*) and *Oenothera longiflora,* and in sheep after eating *Panicum effusum.* Severe outbreaks in sheep were associated with heavy infestations of aphis on the herbage. Chronic COPPER POISONING was seen in sheep, chiefly associated with grazing succulent herbage or subterranean clover. In studies on TOXAEMIC JAUNDICE cases of HELIOTROPE POISONING occurred in Border Leicester × Merino and Dorset Horn × Merino crosses but not in Merino sheep. Experiments were begun to investigate whether topdressing with molybdenum alone or with lime will reduce the risks of the disease on subterranean clover pastures. NUMINBAH HORSE DISEASE was thought to be due to ingestion of Crofton Weed (*Eupatorium sp.*). Recent observations suggest that the disease is allergic in nature. Antihistamines give temporary relief.

Inflammatory conditions account for most cases of STERILITY in cattle but ovarian dysfunction and hormone imbalance are being more widely recognized. Some cases of sporadic ABORTION in cows were attributed to an abortifacient principle in silage.—H. McL. GORDON.

NORTHERN RHODESIA. (1954). **Game and Tsetse Control Department. Annual report for the year 1953.** pp. 20. Lusaka: Govt. Printer. 1s. **4205**

Owing to the freedom from RINDERPEST outbreaks in the territory south of the central railway in Tanganyika, the game cordon maintained on the Northern Rhodesia-Tanganyika border has been closed down.

The occurrence of sporadic outbreaks of TRYPANOSOMIASIS in cattle remains a major problem. Constant liaison with the Veterinary Department helps to minimize the losses.

—J. A. GRIFFITHS.

FEDERATION OF NIGERIA. (1954). **Annual Report on the Veterinary Department for the year 1952-53.** pp. 28. Lagos: Federal Government Printer. 9d. **4206**

The numbers of stock have not deviated materially from previous years and there have been no serious outbreaks of disease, although losses of poultry in some cases were very high.

Amongst diseases still present are RINDERPEST, BOVINE CONTAGIOUS PLEURO-PNEUMONIA, and TRYPANOSOMIASIS (for which close on 80,000 bovines and 1,000 equines were treated). Bacterial diseases were under reasonable control and serious outbreaks occurred only where annual vaccination had been disregarded. Almost 150,000 animals were treated for HELMINTHIASIS in the north, 100,000 in the east and 20,000 in the west. Direct and indirect losses from PARASITISM are considerable.

The Veterinary Research Laboratory carries on vaccine production, research, and operates a diagnostic service.
school were adequate. Outbreaks of both BOVINE CONTAGIOUS PLEURO-PNEUMONIA and RINDERPEST within a few miles of the school afforded excellent opportunities for demonstration and instruction. Amongst subjects dealt with outside the ordinary curriculum were:— Nigerian Dairy produce; grading; entraining and transport of livestock, bovine STERILITY and inspection of hides and skins.—D. S. RABAGLIATI.

BRITISH HONDURAS. (1954). **Annual report of the Agriculture Department for the year 1953.** [GOODBAN, J. W. D.] pp. 35. British Honduras: Printing Department. **4207**

There was only one Veterinary Officer in the Colony during six months of the year.

One case each of TUBERCULOSIS and COCCIDIOSIS was diagnosed in cattle and one case of SWINE ERYSIPELAS. There were 250 deaths from SWINE FEVER among 300 pigs. In the infected areas 3,896 pigs (80% of the total) were immunized.

Bovine REDWATER appears to be enzootic. Three imported breeding animals died from the disease.—J. A. GRIFFITHS.

COLONY OF FIJI. (1954). **Department of Agriculture annual report for the year 1953** pp. 52. Suva: Govt. Press. Counc. Paper No. 37. 5s. 6d. [Report of Senior Veterinary Officer, OHMAN, A. F. S., pp. 12-16.] **4208**

TUBERCULOSIS—7,449 tuberculin tests in registered dairies revealed 1.49% reactors. Forty-two clinical cases of *TB.* were also detected at routine stock inspections. Sporadic cases of BRUCELLOSIS occurred; 1,031 calves were vaccinated with Strain 19. RINGWORM is common in horses and cattle.

HELMINTHIASIS, faulty feeding and bad management are the main causes of losses among calves.—J. A. GRIFFITHS.

(1954). Ministerie van Landbouw. Verslag van de veeartsenijkundige dienst over het jaar 1953. [BELGIUM. **Ministry of Agriculture. Report of the veterinary service for the year 1953.**]—*Vlaam. diergeneesk. Tijdschr.* **23,** 123-133. **4209**

A report with statistics on cattle TUBERCULOSIS, FOOT AND MOUTH DISEASE, SWINE FEVER, BRUCELLOSIS, TRICHOMONIASIS, VIBRIOSIS, BLACKLEG, ANTHRAX, NEWCASTLE DISEASE, parasitic diseases, diseases of rodents, artificial

The Veterinary School passed out 25 men in 1952. The facilities for practical work at the insemination and carcass destruction. NEWCASTLE DISEASE was confirmed in all the provinces. TULARAEMIA was diagnosed in 4 hares. MYXOMATOSIS occurred in wild rabbits and in domestic rabbits in Western Flanders.

—C. A. VAN DORSSEN.

BOOK REVIEWS

—(1954). Die BCG-Schutzimpfung. **[B.C.G. vaccination.]** [Edited by: GRIESBACH, R.]. pp. xii+330. Stuttgart: Georg Thieme. DM 16.50. **4210**

This book is the work of a group of experts from a number of countries, under the editorship of Griesbach.

Their aim has been to produce a comprehensive review of the subject, suitable to serve as a standard book of reference for practitioners, research workers and public health administrators. The thoroughness of the work would suggest that this aim may have been achieved. The approach is historical, the reader being presented with what amounts to an orderly series of references to, or critical abstracts from, work which has played a part in the growth of present theory and practice. Each subsection ends with a full bibliography of the work quoted within it, and several of these bibliographies run to a number of pages.

The text falls into three sections. Section I deals with animal inoculation experiments, the bacteriology of the vaccine, and the problems attending vaccination. Section II deals with the B.C.G. vaccination in cattle and man. Section III embraces objections which have been raised against the method; a résumé of the method; and ways of organizing a vaccination campaign on a national scale, with special reference to current methods in France and Germany.—A.S.

GUSTAFSON, B. A. (1955). **Otitis externa in the dog. A bacteriological and experimental study.**—pp. 117. Stockholm: Gernandts Boktryckeri. [In English.] **4211**

The authors isolated a yeast (*Pityrosporum canis*) and toxin-producing staphylococci from the ears of dogs with otitis externa, and reproduced the condition by introducing one or other of these organisms into normal ears. Other bacteria (β-haemolytic streptococci, *Pseudomonas pyocyanea,* and organisms resembling corynebacteria) were present apparently only as secondary invaders. The treatment of otitis externa with fungicidal preparations has given good results.—R.M.

BLOND, K. (1955). **The liver and cancer. A new cancer theory.** pp. xii+220. Bristol: John Wright & Sons, Ltd. 27s. 6d. **4212**

Broadly stated, the theory is that the cause of cancer is liver damage, and the cause of death in cancer patients is liver failure. The theory is developed from a consideration of the fact that a large number of cancers in adult human beings arise in organs of the alimentary tract, and it is supposed that there are present in portal blood, which has not been detoxicated by the liver, "toxic nutriments" or "alimentary toxins" which are capable of causing the growth of cancer when, for example, they flood tissues of the alimentary tract in portal hypertension, or when they reach other organs in sufficient quantity, either because they have by-passed the liver, or a damaged liver has failed to detoxicate them.

The author is described in the foreword as "always an original thinker and a rebel against blind orthodoxy". While one may admire the author's ingenious theorizing, to a comparative pathologist, at any rate, the theory will probably seem unlikely to prove helpful in accounting for

the occurrence of the different kinds of cancer in the different species.—E. COTCHIN.

KÜHN, A. (1955). Grundriss der Allgemeinen Zoologie. **[Essentials of general zoology.]** pp. vii + 281. Stuttgart: Georg Thieme. 11th revised edit. DM 16.50. **4213**

This is a general introductory textbook.

—A.S.

SHEEHY, E. J. [Professor of Animal Nutrition, University College, Dublin]. (1955). **Animal nutrition.** pp. viii + 732. London: Macmillan & Co.; (New York: St. Martin's Press). 30s. **4214**

Although several books on animal nutrition are already available, their subject matter and methods of presentation do not differ widely. There is a large amount of information which needs to be incorporated with the earlier work, and a wide gap still exists between the theoretical basis of animal nutrition and practical policies for livestock feeding. The present book is an attempt to fill these omissions, and for this the author is to be applauded.

The function of the body as a whole is discussed first and this is followed by chapters on dietary constituents, their metabolism in the body, and methods of assessing the nutritive value of foods. The use of Fodder Units for expressing the energy value of foods is employed, and favourably compared with the use of Starch Equivalents. Further chapters are devoted to each type of farm livestock and their individual feeding requirements for health and production. There is a final supplementary chapter on mineral and vitamin deficiencies and antibiotics.

The author's wide experience is obvious from the way in which, throughout the book, careful attention is given to even the smallest practical details which would escape many observers. There are not many technical errors, but an important one is that the Starch Equivalent of foods is defined as the amount of the individual foods which have the same fat producing capability as 100 lb. of the respective foods instead of as the amount of starch which is equivalent to 100 lb. of the food. The style lacks the same attention which has been given to technical details and tends to be verbose in places with some repetition and several grammatical errors which no doubt will be rectified in later editions.—W. H. PARR.

— (1955). **Annotated bibliography of vitamin E 1952-1954.** Vol. III. [Compiled by: HARRIS, P. L. & KUJAWSKI, W.] pp. 182. New York: The National Vitamin Foundation, Inc. $3. **4215**

This work makes reference to 996 papers. Some of them are represented by their titles alone, but for most there are abstracts of fair length. The years 1952 and 1953 are covered completely, and there are some papers from 1951 and earlier years.

There are 7 sections:— Occurrence and distribution; Determination; Chemistry; Physiology and pathology; Pharmacology; Nutrition and metabolism; and Medical and therapeutic uses.

An author index is provided.—A.S.

ROY, J. H. B. [National Institute for Research in Dairying, Shinfield, Reading]. (1955). **The calf. Its management, feeding and health.** pp. 79. London: Farmer & Stock-Breeder Publications, Ltd. 5s. **4216**

This is a small pocket book intended as a young farmer's introduction to calf-rearing.

—A.S.

ALTSCHULE, M. D. [Assistant Professor of Medicine, Harvard Medical School]. (1954). **Physiology in diseases of the heart and lungs.** pp. xv + 554. Cambridge, Mass: Harvard University Press; (London: Geoffrey Cumberlege, Oxford University Press). Revised edit. $7.50. 60s. **4217**

This book, published for the Commonwealth Fund by the Harvard University Press, was written following the request by third- and fourth-year medical students of that university for a ready source of information on the physiological background to clinical conditions of the heart and lungs. The style is consistently clear.

—A.S.

DUNBAR, F. (1954). **Emotions and bodily changes. A survey of literature on psychosomatic interrelationships 1910-1953.** pp. xxii + 1192. New York: Columbia University Press; (London: Geoffrey Cumberlege, Oxford University Press). 4th Edit. $15.00. 120s. **4218**

This book deals with the part played by psychic disorders in producing disease of the various systems of the body. There are no veterinary references.—A.S.

— (1955). **A textbook of physiology.** [Edited by: FULTON, J. F.] pp. xlii + 1275. Philadelphia (& London): W. B. Saunders Co. 17th Edit. 94s. 6d. **4219**

This book is the 17th edition of what was

originally known as Howell's Textbook of Physiology but, as in the case of many other textbooks, its revision has had to be undertaken by a number of authors. In this case, some twenty-four authors, under the editorship of Professor Fulton, have revised what has always been an excellent standard book on general physiology. The original purpose of textbooks of this nature was to provide the student with an outline of the fundamental principles of the subject, but the addition of more and more detail has become such that the ordinary student can hardly have time to read, much less digest the weighty tomes which are now placed before him. This, it must be said, applies to the work under consideration. As a reference book for teachers and research workers, however, the book provides an authoritative and reliable source of information and is one which will be consulted often.

The book follows the usual pattern of considering the different systems, *e.g.* muscle, central nervous system, respiration, etc., section by section. The chapters dealing with the central nervous system are excellent and the veterinary physiologist will find those on the circulatory system and metabolism of particular value. It would be impossible to review in detail all the sections making up the book, as each really forms a monograph in its own right. Indeed, if any future revision is contemplated, it might be worth considering publishing them as such. However, it can be said that the present edition of this work maintains the standards of its original author, Professor Howell, and is an indispensable volume in any physiological laboratory's library.
—J. A. NICHOLSON.

— (1955). **Progress in the physiology of farm animals.** Vol. II. [Edited by: HAMMOND, J.] pp. 395-740 + xv. London: Butterworths Scientific Publications. 45s. **4220**

The object of publishing the three volumes making up this work is to provide a foundation for the application of recent advances in physiology to farm practice, so that the efficiency of farm animals as producers of meat, milk, wool, eggs, etc. may be improved. The work, therefore, is mainly concerned with a consideration of the applied physiology of domestic animals.

The sections dealt with in volume II are Growth, Animal behaviour, Locomotion and Reproduction. Chapters on live-weight; growth; conformation; body composition and wool growth make up the section on growth. The section on animal behaviour is divided into two chapters, one on the behaviour of grazing animals and the other on sexual behaviour. In the section on locomotion, the mechanism of movement is considered in general terms, whilst the section on reproduction deals only with egg production and fertility in poultry.

There are disadvantages in having a book written by different authors; in this case the seven chapters making up the volume have each a separate author. Each chapter tends to become, to all intents and purposes, a review article thus making the book disjointed and a comprehensive picture of the work as a whole is difficult to obtain. The book, however, contains a great deal of information which otherwise is not readily available and, when completed, the three volumes will undoubtedly be a valuable contribution to the literature dealing with applied mammalian physiology.—J. A. NICHOLSON.

LEUTHARDT, F. [Ordentlicher Professor an der Universität Zürich] (1955). Lehrbuch der Physiologischen Chemie. **[Textbook of physiological chemistry.]** pp. xvi + 823. Berlin: Walter de Gruyter & Co. 12th revised edit. DM 42. **4221**

This book is divided into six parts. The first deals with the chemistry of the chief constituents of food and living organisms. This includes the structure and classification of carbohydrates, proteins and lipids. Treatment of this material is rather stereotyped in most textbooks, but here it has been made more useful by the addition of a considerable amount of basic organic chemistry.

The second part deals with fundamental physical chemistry necessary for an understanding of the chemistry of the living organism: for example, the properties of solutions, acids and bases, oxidation and reduction, and general colloid chemistry. Part 3 describes at length the various metabolic processes of the living organism. A topical feature is the inclusion of a chapter devoted largely to the use of radioactive isotopes in tracing metabolic pathways.

The composition and function of individual organs and tissues is dealt with in part 4, while part 5 is entitled, "The chemical regulation of physiological function". Vitamins and trace elements are included under the heading of "Nutrition" in part 6. Other aspects of nutrition are also dealt with briefly in this part.

The book is written mainly from the point of view of human physiological chemistry, but most of the material is, of course, common to veterinary science. The subject matter has been brought well up to date; the style is concise, and the general production is good. For those who can read German, this is one of the most com-

prehensive books available on physiological chemistry.—W. H. PARR.

— (1955). **Annual review of biochemistry. Vol. XXIV.** [Edited by: LUCK, J. M., LORING, H. S. & MACKINNEY, G.] pp. xvi+805. Stanford, Calif.: Annual Reviews, Inc.; (London: H. K. Lewis & Co.,) $7.50. **4222**

Among the papers of veterinary interest are:— The biochemistry of cancer (A. Haddow.); Lipide metabolism (F. Lyren); Clinical applications of biochemistry (O. Bodansky); Biochemistry of antibiotics (S. B. Binkley); Nutrition (J. F. Brock.)—A.S.

ROOTS, E. [o. Professor und Direktor des Veterinärhygienischen und Tierseuchen-Instituts der Justus Liebig-Hochschule, Giessen]. HAUPT, H. [apl. Professor für Veterinärhygiene an der Justus Liebig-Hochschule, Giessen]. HARTWIGK, H. [o. Professor und Direktor des Instituts für Veterinärhygiene der Freien Universität, Berlin]. (1955). Veterinärhygiene. Eine Lehrbuch der Gesundheitspflege für Studierende, Tierärzte und Landwirte. **[Textbook of veterinary hygiene.]** pp. vii+229. Berlin (& Hamburg): Paul Parey. DM 23.80. **4223**

This book deals briefly but thoroughly with practical aspects of veterinary hygiene including housing, diet, the provision of water, pasture management, disinfection and disinfestation. There are good diagrams illustrating among other things the construction of cow stalls, milking sheds, stables, piggeries, hen houses, wells, watering facilities, fencing and gateways.—A.S.

ANON. (1954). **A handbook of laboratory animals. Prepared by the Institute of Animal Resources.** pp. v+77. Washington, D.C.: National Academy of Sciences—National Research Council. Publ. No. 317. $1.25. **4224**

The title is misleading since the greater part of the book consists of lists of producers, suppliers and users of laboratory animals in the U.S.A. Under each individual entry there are details of the stocks available or used. This information is recognized as being incomplete. The handbook, which also contains some brief notes on some diseases of laboratory animals and a bibliography, is merely the first step in a programme designed to disseminate useful information. In its present form the book is of value only to workers in the U.S.A.—J. S. PATERSON.

BARNARD, C. C. (1955). **A classification for medical and veterinary libraries.** pp. viii+279. London: H. K. Lewis & Co. Ltd. 2nd. Edit., revised and enlarged. 84s. **4225**

The second edition shows considerable expansion and revision, 3,000 topics being listed in the main schedule, instead of the 1,500 of the first edition. A desirable change is that places for veterinary topics are now provided throughout the scheme, associated with the related diseases, parasites etc., of human beings, instead of the material being segregated in one class. The alphabetical notation results in a remarkably short symbol. When the scheme is used for the arrangement of books on veterinary science, two or three letters are generally sufficient. Ample variant placings are provided, facilitating the application of the scheme to the specific requirements of a particular collection.

Eleven supplementary tables are now provided, allowing the use of the classification for the arrangement of the most specialized material. As several of these tables are special adaptations of the schedule of general subdivisions, it is felt that this might well have been expanded to include these adaptations to reduce the number of supplementary tables.

Although the classification was designed for the library of the London School of Hygiene and Tropical Medicine, it has proved, in practice, to be suitable for the arrangement of material of veterinary interest.—D. E. GRAY.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude preview.]

ANTHONY, D. J. (1955). **Diseases of the pig and its husbandry.** pp. xi+369. London: Baillière, Tindall & Cox. 4th Edit. 25s.

CHALMERS, C. H. (1955). **Bacteria in relation to the milk supply. A practical guide for the commercial bacteriologist.** pp. viii+291. London: Edward Arnold (Publishers) Ltd. 4th Edit. 21s.

ANON. (1954). **Vitamin B_{12} and antibiotics in animal nutrition. Annotated bibliography.** pp. 94. Rahway, N.J.: Merck & Co., Inc.

ANON. (1955). The Josiah Macy, Jr. Foundation, 1930-1955. **A review of activities.** pp. xi+174. New York: Josiah Macy, Jr. Foundation.

—. (1955). **The hormones. Physiology, chemistry and applications.** Vol. III. [Edited by: PINCUS, G. & THIMANN, K. V.] pp. xiii+1012. New York: Academic Press, Inc. $22.00.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey, Surrey.